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Assessment of Health Care Providers' Attitude and Associated Factors to Wards Safe Abortion at Public Hospitals, in Mekelle City, Tigray, Ethiopia; A Cross Sectional Study

By Zaid Tadesse, Alemayehu B Kahsay, Weyzer Tilahun & Kalayou K Berhe
Mekelle University, Ethiopia

Abstract- Background: Unwanted pregnancies and unsafe abortions are serious public health problems in the developing world, including Ethiopia. Until recently, safe abortion services were not available in Ethiopia, and little is known about the health providers' attitude who is currently working in the abortion service provision. Assessing health care providers' attitude and factors affecting their attitude towards safe abortion will help to focus on their solutions and facilitate of future safe abortion services.

Objective: Was To assess health providers' attitude and associated factors towards safe abortion service at Public Hospitals in Mekelle City, Tigray, Ethiopia.

Methods: Institution based cross sectional study design was conducted using a quantitative method in Public hospitals, at Mekelle City, Tigray, Ethiopia. A self administered questionnaire was used to collect the data. Pre-test was done for assuring Data quality. Data collectors were 5 nurses.

Keywords: *abortion, health care providers, attitude, public hospital.*

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Assessment of Health Care Providers' Attitude and Associated Factors to Wards Safe Abortion at Public Hospitals, in Mekelle City, Tigray, Ethiopia; A Cross Sectional Study

Zaid Tadesse ^α, Alemayehu B Kahsay ^α, Weyzer Tilahun ^ρ & Kalayou K Berhe ^ω

Abstract- Background: Unwanted pregnancies and unsafe abortions are serious public health problems in the developing world, including Ethiopia. Until recently, safe abortion services were not available in Ethiopia, and little is known about the health providers' attitude who is currently working in the abortion service provision. Assessing health care providers' attitude and factors affecting their attitude towards safe abortion will help to focus on their solutions and facilitate of future safe abortion services.

Objective: Was To assess health providers' attitude and associated factors towards safe abortion service at Public Hospitals in Mekelle City, Tigray, Ethiopia.

Methods: Institution based cross sectional study design was conducted using a quantitative method in Public hospitals, at Mekelle City, Tigray, Ethiopia. A self administered questionnaire was used to collect the data. Pre-test was done for assuring Data quality. Data collectors were 5 nurses. The study population included: health officers, nurses, midwives, general practitioners, Obstetrician and Gynecologists. A probability proportional to size allocation was done. Systematic random sampling was employed to select the intended study subjects. Sample size was 243. Bivariate and multivariate logistic regression analysis was run to interpret and identify factors associated with attitude. OR, 95% confidence interval and p- value was calculated. Data entry, cleaning and analyzing was done by using SPSS version16 statistical software.

Result: A total of 230 health providers' had participated with a response rate of 94%. The odds of favorable attitude among the respondents who had good knowledge on abortion were 6.87 times the odds of the respondents who had poor knowledge on abortion [AOR=6.87, 95% CI (1.2, 39.90)]. Similarly the odds of favorable attitude among the respondents who didn't agree on the current Ethiopian law on abortion due to religious reason were 92% lower than the odds of the respondents who had agreed on the current Ethiopian law on abortion [AOR= .08, 95% CI (.02, .37)]. The odds of favorable attitude among the respondents who didn't agree

due to more than two reasons on the current Ethiopian law on abortion was 89% lower than the odds of the respondents who had agreed on the current Ethiopian law on abortion [AOR=.11, 95% CI (.02, .66)].

Conclusion and recommendation: Even though majority of the respondents never performed safe abortion, they have favorable attitude towards safe abortion. Lack of training was one of the reasons that forced them not to practice safe abortion. Training of health providers regarding abortion procedure may be important for sustained and safe abortion services.

Keywords: abortion, health care providers, attitude, public hospital.

I. INTRODUCTION

Abortion is defined as the termination of pregnancy by the removal or expulsion from the uterus of a fetus or embryo prior to viability. WHO defines "unsafe abortion" as a procedure for terminating an unintended pregnancy either by individuals without the necessary skills or in an environment that does not conform to minimum medical standards, or both. As reported in WHO's reproductive Health Strategy, 13% of all pregnancy-related deaths are due to unsafe abortion. According to WHO, approximately 20 million unsafe abortions are performed worldwide every year and are considered as major public health problems since it alone causes about 13% of the global burden of maternal mortality in developing countries. The most significant current discussions about unsafe abortion and unwanted pregnancy are the denial of women's health rights and the disproportional number of maternal deaths in developing countries. Annually, it is estimated about 80, 000 worldwide deaths from unsafe abortions, over 99% of these deaths occur in the developing countries of sub-Saharan Africa, Central and Southeast Asia, and Latin America and the Caribbean (1,2, 3).

Ethiopia has the fifth highest number of maternal deaths in the world: One in 27 women dies from complications of pregnancy or childbirth annually. In 2008, an estimated 382,000 induced abortions were performed in Ethiopia, and 52,600 women were treated for complications of such abortions. There were

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an estimated 103,000 legal procedure in health facilities nationwide 27% of all abortions. Nationally, the annual abortion rate was 23 per 1,000 women aged 15–44, and the abortion ratio was 13 abortions per 100 live births. The abortion rate in Addis Ababa (49 per 1,000 women) was twice the national level. Overall, about 42% of pregnancies were unintended, and the unintended pregnancy rate was 101 per 1,000 women. About half of all health facilities in Ethiopia provide induced abortion services. However, the proportion is much higher for public hospitals (76%) and private or nongovernmental organization facilities (63%) than for public health centers (41%). Starting in 2007, the Tigray Health Bureau and Ipas conducted a two-year project using the safe abortion care monitoring framework to assess progress on implementing the FMOH mandate for improved abortion and post abortion contraception and services. This conducted baseline assessment showed limited availability of SAC services in Tigray, largely because many facilities were not yet providing safe induced abortion services (4,5,6).

Studies identify a wide range of factors impacting the attitude and perception of health professionals towards abortion. Illegal abortion and laws in general have lead to a large degree of mortality, morbidity and socioeconomic loses. For instance most illegal abortion in sub-Saharan Africa is conducted on young girls not yet married which mostly is associated with the possible end of going to school and consequently leading to female illiteracy and poor awareness about reproductive rights. Unsafe abortion in Ethiopia is exercised in different risky ways that range from the traditional remedies such as toxic chemicals, insertion of contaminated, unsterilized instruments into the uterus and swallowing pills from traditional healers (7,8,9).

Health Providers' attitude is a major barrier to women's access to care. Many individual remain unaware that termination of pregnancy is permitted under certain condition where some services are available, limited resources, lack of adequate provider training and stigma surrounding abortion further limits women's access to quality care. In such environment providers may also have less training and experience with methods of termination of pregnancy, further contributing to misinformation and stigma, which can translate into poor quality information, and counseling. The infrastructure to provide legal and safe abortion lags behind in some developing countries. Abortion is now legal in Ethiopia in certain circumstances. However, legalization only, does not guarantee the required care. Factors like poverty; inaccessibility of health service, social, cultural, economic and religious pressures can also prevent a woman from getting SAC by a skilled practitioner even in countries with legal abortion. The service of abortion care is conducted by several providers with different backgrounds (10,11,12,13,14).

Health care Providers' attitude and readiness for quality of services potentially influences, to offer services, offer a choice of methods and provide clients with access to safe abortion services. In Ethiopia very few researches has been done regarding to the attitude of health providers and associated factors towards safe abortion. The same is true for our region. Consequently, little is known about the providers' attitudes and associated factors towards safe abortion. This study will try to fill the gap and help to focus on their solutions and facilitate of future abortion services. The purpose of this study is to assess health providers' attitude and associated variables towards safe abortion. Abortion is now legal in Ethiopia in cases of rape, incest or fetal impairment, if her life or her child's life is in danger, or if continuing the pregnancy or giving birth endangers her life, if she is unable to bring up the child, owing to her status as a minor or to a physical or mental infirmity. Even though abortion is legal in some circumstances unsafe abortion remains common In Ethiopia. This shows legalization does not give guarantee for availability of safe abortion service. Provider' background and attitude do have potential consequences for women's with scarce access to safe abortion services. Availability of safe abortion services is influenced by the providers' willingness to offer service. Therefore, it is important to assess health providers' attitude and associated factors towards safe abortion. The author strictly believes that studying on this issue and identifying the main factors influencing providers' attitude towards safe abortion will help to focus on their solutions. The result of this study will facilitate to assess the attitude and experiences of health care workers and can offer important information for the planning and improvement of abortion care and by providing baseline information for implementation of the law regarding abortion services. By there, it might bring a significant change on reducing maternal morbidity and mortality caused by complications of unsafe abortion.

II. METHODOLOG

a) Study Setting

The study was conducted at Mekelle the capital city of the Tigray regional state lies 783 km north of Addis Ababa. The town is also divided into seven administrative parts: Hawelty, Hadnet, Ayder, Semen, Kedamay weyane, Adihaki, and Quiha. There are four governmental hospitals in Mekelle. Two of them are under Regional health Bauru (Quiha and Mekelle hospital), one under the ministry of defense (North command referral hospital), one referral hospital (Ayder referral hospital). There are also four other private hospitals in the town. In addition there are eight health centers and 38 private clinics in Mekelle (35). Study period was from May to December 2012, an institution based cross-sectional study was conducted, Source

population was all health care providers' who are working under Public hospitals in Mekelle City. Study Population was all sampled eligible health care providers' with six months and above work experience in their respective public hospitals. Inclusion criteria was all Health care providers' who have six months and above work experience in their respective public hospitals and participants exclude from the study were Those who are unable to here and understand the national language Amharic.

b) Sample size and sampling procedures

The sample size was determined by using a formula for estimating a single population proportion. Prevalence was taken as 37% from a previous similar study conducted in Addis Ababa, Ethiopia (19). Since the study population was less than 10,000 finite population correction formulas was applied finally after adding 10% non response rate, the total sample size required for this study appears to be 243 health care providers'.

c) Sampling procedure

A probability proportional to size allocation was done, Systematic random sampling was employed to select the intended study subjects, from each public hospital which are found in the City. Those were: Ayder referral hospital, North command referral hospital, Mekelle hospital, and Queha hospital. A probability proportional to size allocation of the study subjects for each hospital was done:

d) Data collection techniques, Instrument

This study was used a structured, quantitative self administered questioner among governmental hospital workers in Mekelle City. A structured questionnaire was designed by reviewing previous similar studies in such a way that consists all the variables that can meet the objectives of the study. It includes all questions related to attitude and factors influencing health care providers' attitude towards safe abortion. The principal investigator together with the supervisor were strictly followed the overall activities on daily base to ensure the completeness of the questionnaire, to give further clarification and support. Pre-testing of the questionnaire was done to ensure the data quality, its clarity, understandability and completeness prior to data collection, at governmental hospital in Wukro town for individuals with the same inclusion criteria.

e) Study Variables

Dependent variables was Attitude of Health care provider and Independent variables were Socio demographic factor: Sex, Age, Marital status, Religion, Profession, Individual Factor: Knowledge ,previous experience, training, work experience, Environmental Factor : Law, Policy, Socio cultural issue, ethic.

f) Operational definitions

Abortion is defined as the termination of pregnancy before 28 weeks of gestational age by the removal or expulsion from the uterus of a fetus or embryo prior to viability. Unsafe abortion is a procedure for terminating un-wanted pregnancy before 28 weeks of gestational age either by persons lacking the necessary skills or in an environment lacking the minimal medical safety standards or both (36). Safe abortion is the termination of pregnancy before 28 weeks of gestational age by qualified and skilled persons using correct techniques in sanitary conditions. Attitude refers to the participants' response as "favorable" or "unfavorable" towards negative and positive attitudinal statements. The health care provider (also known as health provider) those professionals are Oby and Gyn specialists, GPs, nurses (diploma and degree), midwives (diploma and degree) and HO.

g) Data quality and management

Pre-test was done on 5% of the questionnaire of professionals with the Sa me inclusion criteria at Wukro town. Depending on the result of the pre-test, correction and modification were made on the questionnaire before applying on the study population. One professional supervisor and the principal investigator had supervised data collection processes, check for completeness of the data, correctness of the data collection procedure and as necessary correction were done.

h) Data processing and analysis

Data analysis was started by sorting and performing quality control checkup at the field. The data was checked in the field to ensure that all the information if properly collected and recorded. Before and during data processing the information was checked for completeness. SPSS version 16 statistical software was employed for data entry and analysis. All data were coded in terms of numbers. The analysis included checking errors and describing the collected data by numerical summary measure tables, charts and measures of association, all of which are instruments for interpretation of the collected data. Bivariate analysis was done at a confidence limit of 95% to calculate the crude odds ratio with the outcome variable. The significance was checked using p-value 0.05 and 95% confidence interval. Multivariate logistic regression analysis was used to identify factors associated with outcome variables attitude. Hosmer and Leme show model was used to check the goodness of fit.

i) Scoring Methods

To assess attitude of health care providers towards safe abortion was developed by presenting respondents with a series of negative and positive statements that reflect different aspects of the underlying attitude in a variety of ways. Attitude

statements have five possible responses. The responses was labeled as "favorable" or "unfavorable" as follows; "favorable" responses were responses including strongly agreeing and agree for positive statements and strongly disagree, disagree for negative statements. "Unfavorable" responses' are responses including "strongly agree", "Agree" and uncertain for negative statements, and disagree, strongly disagree and uncertain for positive statements. Marking the total attitude score out of hundred, those with scores of greater than 50% was rated to have favorable attitude and those with a score below 50% as unfavorable attitude. Knowledge of the respondents towards safe abortion was measured by marking the correct answers of subjects out of a hundred. Knowledge scores 50% or less was labeled as "poor knowledge", knowledge scores between 50% and 70% was labeled as moderate knowledge" and knowledge score above 70% was labeled as "good knowledge" (37).

j) *Ethical Considerations*

The study proposal was approved by the ethical clearance committee of Mekelle University and Regional health Bauru. Written permission of these hospitals was secured for their employees to participate in the study and; each health care provider within these hospitals was given a written consent to participate in the study after a thorough explanation of the objectives and the procedures of the study. Specifically, respondents were informed about the objectives of the study and that their participation was purely voluntary and they can be free to decline or withdraw at any time during the course of the study. So only those willing to participate were included in the study. Confid-

entiality and beneficences were insured by making the questionnaires anonymous. Personal identification of the respondents was not asked. They were also be assured that the information provided in writing would be used only for research purpose and would therefore be strictly anonymous and data was entered as confidential, aggregate analysis and reporting system was put secured and in place.

III. RESULT

a) *Socio-demographic characteristics*

About 243 self administered questionnaire were prepared to be distributed into respondents of all public hospitals in Mekelle town. About 13(6%) of health care providers were either could not available at the time of data collection or refused to participate in this study. Therefore, only about 230 of health care providers were participated with a total response rate of 94%.

Table-1 shows an overview of the socio demographic characteristics of sampled health care providers. Of these 230 health practitioners who had participated, 107 (46.5%) were BSC nurses. More than half, 142 (61.7%) of the respondents were females. The median age of the respondents were 28 + 6.65 and overall, 64% were younger than 30 years of old, 27.8% were between 31 and 40 years, and 7.3% were between 41-50 years old. Nearly half, 111(48.3%) of the respondents were married and the majority of the respondents, 219(95.2%) were orthodox followers. The majority, 181 (78.7%) of the respondents primary work place were government hospitals and 63 (27.4%) of the respondents had more than ten years of work experience.

Table 1 : Socio-demographic characteristics of health providers on attitude and associated factors towards safe abortion at public hospitals in Mekelle town from May to December 2012 (n=230)

Variable	Frequency	Percent
Sex of the respondent		
Female	142	61.7
Male	88	38.3
Age category		
20-25	49	21.3
26-30	98	42.6
31-35	35	15.2
36-40	29	12.6
41-45	10	4.4
46-50	7	3
>50	2	.9
Marital status of the respondent		
Married	111	48.2
Divorced	5	2.2
Cohabiting	13	5.7
Widowed	1	.4
Never married	100	43.5

Religion of the respondent		
Orthodox	219	95.2
Muslim	6	2.6
Protestant	2	.9
Catholic	3	1.3
Profession of the respondents		
Oby and Gyni specialist	1	.4
Physician(GP)	6	2.6
Midwifery diploma	13	5.7
Midwifery degree	17	7.4
HO	14	6.1
Nurse diploma	72	31.3
Nurse degree	107	46.5
Work experience of the respondent (in years)		
<1	29	12.6
1-3	51	22.2
3-5	37	16.1
5-10	50	21.7
>10	63	27.4
Primary work place of the respondents		
1. Governmental Hospital	181	78.7
2. Private hospital	2	.9
3. Governmental health center	44	19.1
4. Private higher clinic	3	1.3
Current work place		
1. Ayder referral hospital	141	61.3
2. Mekelle hospital	29	12.6
3. Queha hospital	28	12.2
4. North command referral hospital	32	13.9

b) Attitude of health providers' towards safe abortion

As shown below, out of the 230 health care providers, 218 (94.8%) of them had a favorable attitude for safe abortion [Fig. 3].

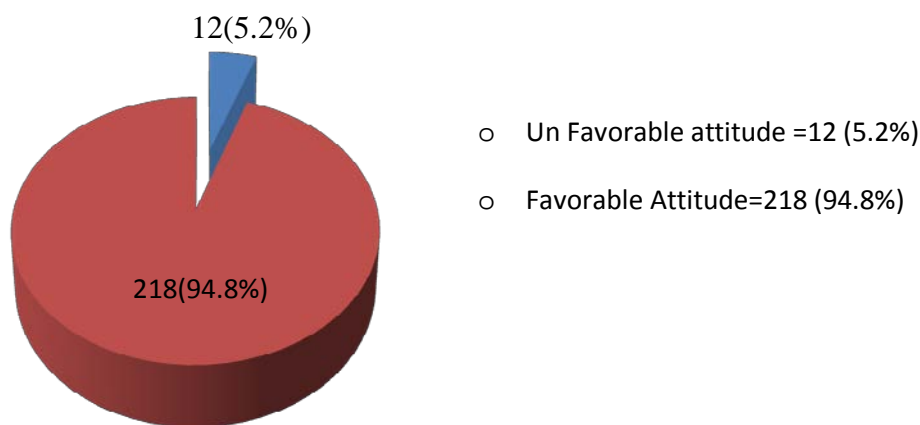


Figure 3 : Pie chart showing attitude of health providers towards safe abortion at public hospitals in Mekelle town from May to December 2012 (n=230)

c) Socio-demographic characteristics of the respondents cross tabulated with attitude category

As shown below in table 2, of the total 142 female and 88 male respondents, 133 (93.7%) of the females and 85(96.6%) of males had a favorable attitude

to safe abortion. And of the total 219 of orthodox respondents 208 (95.0%) of them had a favorable attitude to safe abortion. All Muslim respondents had favorable attitude [Table-2].

Table 2 : Socio-demographic characteristics of HCP cross tabulated with attitude category towards safe abortion at public hospitals in Mekelle town from May to December 2012 (n=230)

Variable	Attitude		Total	P-value
	Favorable n(%)	Unfavorable n(%)		
Sex of the respondents				
Female	133(93.7)	9(6.3)	142	.381
Male	85(96.6)	3(3.4)	88	
Total	218(94.8)	12(5.2)	230	
Religion of the respondents				
Orthodox	208(95)	11(5)	219	.035
	6(2.8)	0(.0)	6	
Muslim				
Protestant	1(50%)	1(50%)	2	
Catholic	3(100%)	0(.0%)	3	
Total	218(94.8)	12(5.2)	230	

d) Environmental factor of the respondent HCP cross tabulated with attitude category

Of the total respondents majority of them, 164(71%) were agreed on the current Ethiopian law. Of

these 161(98.2%) had a favorable attitude for safe abortion. Reasons were asked for those who were against the law 22(33.3%) religious reason, 11(16.6%) personal and cultural reason [Table-3].

Table 3 : Respondent health providers attitude on the current Ethiopian low for safe abortion at public hospitals in Mekelle City from May to December, 2012 (n=230)

Variable	Attitude		Total	P-value
	Favorable n(%)	Unfavorable n(%)		
Agree on the Ethiopian current law				
Yes	161(98.2)	3(1.8)	164	.000
No due to religious reason	17(77.3)	5(22.7)	22	
No due to personal and cultural reason	10(90.9)	1(9.1)	11	
No due to religious, personal & cultural reason	18(85.7)	3(14.3)	21	
No due to another reason	12(100)	0(.0)	12	
Total	218(94.8)	12(5.2)	230	

e) Individual factor of the respondents cross tabulated with attitude category

Of the total 107 BSc. nurses majority of them 100 (93.5%) had a favorable attitude for safe abortion. The majority, 191(83%) of the respondents had no training for safe abortion and 180 (94.2%) of them had favorable attitude. The majority of the respondents 186 (81%) had never performed safe abortion. And of these 176 (94.6%) of them had a favorable attitude to safe abortion. One of the reasons that they were not ever performed safe abortion was due to lack of training (43.5%). Of the total respondents 207(90%) of them have good knowledge and of these, 96.6% of them had a favorable attitude to safe abortion [Table-4].

Table 4 : Individual factor of the Respondents cross tabulated with attitude category at public hospitals in Mekelle City from May to December 2012 (n=230)

Variable	Attitude		Total	P-value
	Favorable n(%)	Unfavorable n(%)		
Profession				
Nurse degree	100(93.5)	7(6.5)	107	.728
Nurse diploma	67(93.1)	5(6.9)	72	
Physician Midwifery degree	6(100)	0(.0)	6	
Physician Midwifery diploma	17(100)	0(.0)	17	
Health officer	13(100)	0(.0)	13	
Oby& Gyn specialist	14(100)	0(.0)	14	
Total	1(100)	0(.0)	1	
	218(94.8)	12(5.2)	230	
Formal training				
No	180(94.2)	11(5.8)	191	.696
Yes	38(97.4)	1(2.6)	39	
Total	218(94.8)	12(5.2)	230	
Ever perform safe abortion				
Yes	42(95.5)	2(4.5)	44	.000
No due to religious factor	11(68.8)	5(31.2)	16	
No due to lack of training	100(99)	1(1)	101	
No due to personal & educational level	14(100)	0(.0)	14	
No due to facility factor & work overload	6(100)	0(.0)	6	
No due to more than 2 reasons of the above	27(90)	3(10)	30	
No due to other reasons	18(94.7)	1(5.3)	19	
Total	218(94.8)	12(5.2)	230	
Knowledge				
Poor knowledge	5(71.4)	2(28.6)	7	.001
Moderate knowledge	13(81.2)	3(18.8)	16	
Good knowledge	200(96.6)	7(3.4)	207	
Total	218(94.8)	12(5.2)	230	

f) Factors influencing providers' attitude towards safe abortion

To specify associated factors that affect favorable attitude regarding to safe abortion at the institutions, bivariate and multivariate analysis had done at an alpha level of 0.05. Accordingly, the independent variables that were significant and non significant are shown below. Based on the analysis using binary logistic regression all the variable of socio demographic characteristics, profession and experience of the respondents were statistically insignificant.

The odds of favorable attitude among the respondents who had good knowledge on abortion were 6.87 times the odds of the respondents who had poor knowledge on abortion other things being equal [AOR=6.87, 95% CI (1.2, 39.90)].

The odds of favorable attitude among the respondents who didn't agree on the current Ethiopian law on abortion due to religious reasons was 92% lower than the odds of the respondents who had agreed on the current Ethiopian law on abortion other things being equal [AOR = .08, 95% CI (.02, .37)].

Similarly, the odds of favorable attitude among the respondents who didn't agree due to more than two reasons on the current Ethiopian law on abortion was 89% lower than the odds of the respondents who had agreed on the current Ethiopian law on abortion other things being equal [AOR= .11, 95% CI (.02, .66)] [Table-5].

Table 5 : Factors influencing providers' attitude towards safe abortion, at public hospitals in Mekelle City, from May to December 2012

variable	Attitude		COR[95%CI]	AOR[95 CI]
	Favorable	Unfavorable		
Sex of the respondents				
Female	133	9	1	1
Male	85	3	1.92[0.5, 7.3]	4.45 [0.32, 62.39]
Age			1.05[0.91,1.21]	0.87 [0.71, 1.07]
Marital status				
Married	107	4	1	1
Never married	93	7	.50[.14,1.75]	0.17 [0.02,1.39]
others	18	1	.67[.07,6.40]	3.44 [0.08, 144.78]
Religion				
Orthodox	208	11	1	1
Others	11	1	.52[.06, 4.53]	1.88 [0.17,20.55]
Profession				
Nurse diploma	67	5	1	1
others	151	7	1.61[.49,5.26]	6.26 [0.25, 155.08]
Professional work experience				
			1.40[.89,2.2]	2.61 [.14, 5.00]
Current work place				
Mekelle & Ayder referral hospital	162	8	1	1
Queha hospital & North command referral hospital	56	4	.69[.20, 2.39]	0.37 [0.02, 5.49]
Knowledge				
Poor knowledge	5	2	1	1
Moderate knowledge	13	3	1.73[.22, 17.3]	3.05 [0.05, 179.86]
Good knowledge	200	7	11.4[1.9,69.7]*	6.87 [1.2, 39.90] *
Formal training				
No	180	11	1	1
Yes	38	1	2.32[.29, 18.6]	21.31 [.27, 166.23]
Comfort at site of abortion				
Yes	66	3	1	1
No due to religious reason	26	4	.29[.06, 1.41]	3.23 [0.21, 48.62]
No due to more than 2 reasons	65	3	.98[.19, 5.08]	4.34 [0.41, 46.04]
No due to other reasons	61	2	1.38[.22, 8.6]	5.17[0.31, 86.28]
Ever perform safe abortion				
Yes	42	2	1	1
No due to religious factor	11	5	.10[.02, .62]*	0.17 [0.03, 9.4]
No due to lack of training	100	1	4.76[.42, 54.2]	109.16 [0.66, 179.59]
No due to More than 2 reasons	27	3	.43[.06, 2.74]	5.93 [0.25, 140.12]
No due to other reasons	38	1	1.8[.16,20.9]	35.25 [.27, 454.02]
Agree on the Ethiopian current low				
Yes	161	3	1	1
No due to religious reason	17	5	.06[.01, .29]*	.08 [0.02, .37] ***
No due to more than 2 reasons	18	3	.11[.02, .60]*	.11 [0.02, .66] **
No due to other reasons	20	1	.37[.04, 3.8]	.02 [0.001, 1.41]

IV. DISCUSSION

The main purpose of this study was to assess health care providers' attitude and associated factors towards safe abortion at public hospitals, in Mekelle town. Providers' perception would have potential consequences for women's already with scarce access to safe abortion services. Deferent research result suggests that sensitizing health providers to the essential nature of safe abortion services may be essential for improving the quality of such services (7).

In this study about 230 of health care providers were participated. This tried to address results that access providers' attitude and associated factors towards safe abortion. According to the results that were trying to assess the attitude of health providers for safe abortion, majority of the respondents (94.8%) had a favorable attitude. The result was consistent with a study done at same region in 2011; 87% of respondent health practitioners had a positive attitude for TOP with an incest case though it was specific. Nearly similar, a qualitative study done on health providers at South

Africa also showed that, in all providers had a positive view on abortion perceived if unplanned pregnancy due to rape or incest (20, 21).

In this study, when the respondents tried to answer for the question that if they had any formal training for safe abortion, of the total 230 respondents, majority of them (83%) had no training for safe abortion. This study result had a similar result of trained providers to the study done at same region in 2011. That was only 20% of the respondents from that study had taken SAC training while the majority (80%) did not get training. On the contrary on a study done at Latin America, majority of health providers (79%) had taken training either for surgical or medical methods. This big gap may be because of economical, social difference as well as lack of financial and fund for training of health providers for safe abortion in our country. In countries where legislation permits termination of pregnancy access to safe induced abortion may be restricted due to limited numbers of trained health care providers (7,20, 23).

The majority of the respondents (81%) had never performed safe abortion. And of these, 94.6% of them had a favorable attitude for safe abortion. This result showed that although the majority of the respondents had never performed safe abortion, they had favorable attitude towards it. Lack of training was one of the reasons that forced them not to perform safe abortion. Similarly, a qualitative study done at South Africa reported that lack of SAC training practitioners, halted the SAC practice. Many centers only sporadically provide service for safe abortion either because shortage of trained physicians or functioning equipment (21, 33). Religious reason was another factor of the respondents that hinder them to perform safe abortion. This was statistically significant with attitude [COR=.10, 95% CI (.02, .62)]. But the same variable turned insignificant after adjustment [AOR= 0.17, 95% CI (0.03, 9.4)]. The most important personal factor influencing physician's decision not to perform abortions includes lack of training and religious beliefs (34).

Another finding based on the analysis using binary logistic regression all of the variable of socio demographic characteristics were statistically insignificant with the outcome variable attitude. Similar result was found on a study done on health care providers at Addis Ababa, accordingly the variables were statistically insignificant in explaining changes in mean attitude score (19). Multivariate logistic regression analysis was done to assess associated factors to attitude with regard to safe abortion. Accordingly, the significant variables were good knowledge (with a reference of poor knowledge), did not agree on the current Ethiopian law for safe abortion due to religious reason as well as due to more than two reasons (religious, personal, cultural and due to other reasons) with a reference of these respondents who were agreed on the Ethiopian

current law for safe abortion were the significant variables.

The odds of favorable attitude among the respondents who didn't agree on the current Ethiopian law on abortion due to religious reasons was 92% lower than the odds of the respondents who had agreed on the current Ethiopian law on abortion other things being equal [AOR= .08, 95% CI (.02, .37)]. Similarly, the odds of favorable attitude among the respondents who didn't agree on the current Ethiopian law on abortion due to more than two reasons (religious, personal, cultural and due to other reasons) was 89% lower than the odds of the respondents who had agreed on the current Ethiopian law on abortion other things being equal [AOR=.11, 95% CI (.02, .66)].

Reasons were asked for those who were against the law. Religious reason 33.3%, personal and cultural reason 16.6%, religious, cultural and personal reason 32% and due to other reasons 18.1%. The religious reason was statistically significant for the outcome variable attitude. The result was nearly similar with a study done at Addis Ababa in which those who were aware of the prevailing law were 1.77 times more likely to have this favorable attitude than those who were not aware of the law (19). Majority of the respondents who had good knowledge about safe abortion were significantly associated with the outcome variable attitude. The odds of favorable attitude among the respondents who had good knowledge on abortion was 6.87 times the odds of the respondents who had poor knowledge on abortion other things being equal; it was found that [AOR =6.87, 95% CI (1.2, 39.90)]. This result showed that those who had good knowledge on abortion had more favorable attitude towards safe abortion compare to those who had poor knowledge. One well recognized barrier to the provision of optimal care of survivors was that health workers themselves lack knowledge and skills (22).

V. CONCLUSION

The study was tried to assess health providers' attitude and associated factors towards safe abortion at public hospitals, in Mekelle town, Tigray, Ethiopia. From the study findings the following conclusion are drawn: Majority of the respondents had a favorable attitude for safe abortion. Even though majority of the respondents never performed safe abortion in their past experience, they had a favorable attitude towards safe abortion. Lack of training and religious reasons were some of the reasons that forced them not to practice safe abortion. In general the significant variables were good knowledge (with a reference of poor knowledge), did not agree on the current Ethiopian law for safe abortion due to religious as well as due to more than two reasons (religious, personal, cultural and due to other reasons) with a reference of these respondents who were agreed

on the Ethiopian current law for safe abortion were the significant variables and are the factors that affect attitude of health providers to wards safe abortion

VI. RECOMMENDATIONS

Based on the above conclusions, the following points are recommended: Efforts may be required from Regional health Bauru, Ministry of defiance, and Federal health office for improving knowledge health providers' regarding safe abortion. Regional health Bauru, None governmental organizations and other fund raising agents need to prepare enough budgets for training of health providers' regarding to a safe abortion and related costs. Further researches including qualitative methods related to this topic at all health institutions are recommended.

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Syndrome De Moschowitz Et Grossesse A Propos D'un Cas Avec Revue De La Litterature

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Abstract- Thrombotic thrombocytopenic purpura (TTP) is a form of thrombotic microangiopathy (TMA) particularly serious because it can be accompanied by a multi-organ failure. Post-mortem studies in these patients revealed the presence of thrombi in the microcirculation of most organs, suggesting that the TTP is a multi-systemic disease. We distinguish sporadic PTT, which permanently cures the PTT recurrent, on the contrary characterized by regular and frequent relapses and intermittent PTT, where relapses occur with irregular frequency. Different types of MAT may encounter during pregnancy and postpartum, as PTT, HUS and HELLP syndrome. The latter is a more specific form of MAT of pregnancy and postpartum, it is sometimes difficult to distinguish TTP and HUS.. This distinction can be based on hepatic dysfunction and disseminated intravascular coagulation, present in the HELLP syndrome and absent in TTP and HUS. Some HUS occurring during postpartum may be related to a heterozygous mutation in the Factor H gene (E. Rondeau, personal communication). Treatment of TTP in pregnancy is also based on the achievement of plasma exchange. Pregnancy does not affect the response to treatment of TTP.

Keywords: *Thrombotic thrombocytopenic purpura; pregnancy; treatment; prognosis.*

GJMR-E Classification : *NLMC Code: WS 360*



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Syndrome De Moschowitz Et Grossesse A Propos D'un Cas Avec Revue De La Litterature

Moschowitz Syndrome and Pregnancya Propos a Case and Review of the Litterature

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Résumé- Le purpura thrombotique thrombocytopénique (PTT) est une forme de microangiopathie thrombotique (MAT) particulièrement grave puisqu'elle peut s'accompagner d'une défaillance multi viscérale. Des études post-mortem chez ces patients ont révélé la présence de thrombi dans la microcirculation de la plupart des organes, suggérant que le PTT est une maladie multi systémique. On distingue classiquement le PTT sporadique, qui guérit définitivement, le PTT récidivant, caractérisé au contraire par des rechutes fréquentes et régulières, et le PTT intermittent, où les rechutes surviennent avec une fréquence irrégulière. Différents types de MAT peuvent se rencontrer au cours de la grossesse et du post-partum. Il en est ainsi du PTT, SHU et HELLP syndrome. Ce dernier est une forme de MAT plus spécifique de la grossesse et du post-partum. Il est parfois difficile de le distinguer du PTT et du SHU. Cette distinction peut se fonder sur l'atteinte hépatique et la coagulation intra vasculaire disséminée. Elles sont présentes dans le HELLP syndrome et absentes dans le PTT et le SHU. Le traitement du PTT de la grossesse repose également sur la réalisation d'échanges plasmatiques. La grossesse ne modifie pas la réponse au traitement du PTT. Cependant, les conséquences des échanges plasmatiques sur le fœtus n'ont pas encore été évaluées. Par ailleurs, il existe chez ces patientes un risque de rechute du PTT en dehors de toute grossesse. Le HELLP syndrome est important à distinguer puisqu'il nécessite le plus souvent une extraction fœtale. La spécificité de la prise en charge de ces patientes et le risque de rechute lors des grossesses ultérieures sont des raisons qui motivent un suivi de ces patientes par des centres ayant l'expérience de ce genre de pathologie. Le traitement de cette microangiopathie fait appel aux mesures de réanimation et aux échanges plasmatiques. Le PTT nécessite un diagnostic rapide et un traitement adapté. Il existe encore des évolutions fatales, qui sont en grande partie liées à des retards de prise en charge ou à des thérapeutiques inadaptées. Nous rapportons une nouvelle observation d'un cas de purpura thrombotique thrombocytopénique mal diagnostiqué au début, survenant chez une parturiente à 36SA accouchée par voie basse un nouveau-né bien portant, l'évolution pour la patiente était favorable grâce aux échanges plasmatiques débuter après la non-réponse à la corticothérapie et l'immunoglobulinothérapie et la transfusion plaquettaire.

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Motsclés: purpura thrombotique thrombocytopénique; grossesse ; traitement ; pronostic.

Abstract- Thrombotic thrombocytopenic purpura (TTP) is a form of thrombotic microangiopathy (TMA) particularly serious because it can be accompanied by a multi-organ failure. Post-mortem studies in these patients revealed the presence of thrombi in the microcirculation of most organs, suggesting that the TTP is a multi-systemic disease. We distinguish sporadic PTT, which permanently cures the PTT recurrent, on the contrary characterized by regular and frequent relapses and intermittent PTT, where relapses occur with irregular frequency. Different types of MAT may encounter during pregnancy and postpartum, as PTT, HUS and HELLP syndrome. The latter is a more specific form of MAT of pregnancy and postpartum, it is sometimes difficult to distinguish TTP and HUS.. This distinction can be based on hepatic dysfunction and disseminated intravascular coagulation, present in the HELLP syndrome and absent in TTP and HUS. Some HUS occurring during postpartum may be related to a heterozygous mutation in the Factor H gene (E. Rondeau, personal communication). Treatment of TTP in pregnancy is also based on the achievement of plasma exchange. Pregnancy does not affect the response to treatment of TTP. However, the effects of plasma exchange on the fetus have not been evaluated. Moreover, in these patients there is a risk of relapse of TTP without any pregnancy. HELLP syndrome is important to distinguish because most often requires a fetal extraction. The specificity of the care of these patients and the risk of recurrence in subsequent pregnancies should motivate monitoring of these patients by centers with experience in this kind of pathology. The treatment of this microangiopathy is called it to resuscitation and plasma exchange. We report a case of a case of thrombocytopenic purpurathrombocytopenic misdiagnosed at first, occurring in a parturient with 36SA given birth vaginally a healthy baby, the evolution was favorable to the patient due to start after plasma exchange non-response to corticosteroid and immunoglobulinotherapy and platelet transfusion.

Keywords: Thrombotic thrombocytopenic purpura; pregnancy; treatment; prognosis.

I. INTRODUCTION

La découverte d'une thrombopénie (plaquettes < 100 × 10⁹/L) au cours de la grossesse est une situation fréquente qui peut correspondre à de très nombreux mécanismes. L'objectif de cet article est d'insister sur la nécessité de penser en 1er lieu au

diagnostic du PTT devant toute thrombopénie au cours de la grossesse et ce pour éviter l'évolution fatale. Le syndrome de moschowitz ou purpura thrombotique thrombocytopenique (PTT) est une forme grave de microangiopathie thrombotique (MAT) qui représente une urgence diagnostique et thérapeutique. Même en cas de diagnostic rapide et de traitement adapté permettant une guérison dans près de 85 % des cas, il existe encore des évolutions fatales. Celles-ci sont en grande partie liées à des retards de prise en charge ou à des thérapeutiques inadaptées.

Les transfusions plaquettaires sont en particulier à récuser dans cette indication, puisque de nombreuses observations rapportent des aggravations cliniques au décours de la transfusion à type de manifestations cérébrales pouvant être fatales. Celles-ci peuvent survenir immédiatement après la transfusion ou quelques heures après. Ces observations représentent un niveau de preuve suffisant pour considérer que les transfusions plaquettaires sont une contre-indication dans cette pathologie et ce en dehors d'un syndrome hémorragique menaçant le pronostic vital. En cas de nécessité absolue, la transfusion plaquettaire devra être encadrée d'échanges plasmatiques pour tenter de limiter le risque de complications.

Nous rapportons une nouvelle observation de PTT survenu au cours de la grossesse et nous allons essayer à la lumière des données de la littérature de proposer une stratégie diagnostique et de dégager les grandes lignes thérapeutiques qui vont guider la conduite à tenir devant la survenue d'un PTT.

II. OBSERVATION

Mme H.D. ..., âgée de 33 ans, 3ème geste 2ème pare, de niveau socio-économique défavorisé, sans antécédents pathologiques notamment pas de notion de thrombopénie gestationnelle durant les deux 1ères grossesses. Adressée à 36SA de l'hôpital de DAHKLÀ pour prise en charge d'une anémie à 7g /dl d'hémoglobine et une thrombopénie 55000 e/ [mm] ^3 et elle avait bénéficié d'une transfusion par des culots globulaires à deux reprises.

L'examen à l'admission trouve la patiente en assez bon état général, consciente, bien orientée dans le temps et l'espace, eupneique à l'air ambiant, apyrétique à 37,5°C, ses conjonctives sont décolorées, la TA était à 120/90 mmHg, sans OMI et albuminurie est négative au labstix, sans signes neurosensorielles, le reste de l'examen somatique est sans particularité.

Sur le plan obstétrical, hauteur utérine correspondant à l'âge gestationnel, Bruits Cardiaques Fœtaux (BCF) positifs, absence de contractions utérines, col milong admet un doigt, présentation céphalique mobile, poche des eaux intactes. L'échographie obstétricale a montré une grossesse mono fœtale évolutive, placenta anterofundique, liquide

amniotique en quantité normale, biométrie correspondant à l'âge gestationnel avec une estimation du poids fœtal à 2800g.

Le bilan biologique a montré une anémie hypochrome microcytaire à 6g/dl d'hémoglobine, une thrombopénie sur tube citraté à 28000e/ [mm] ^3, LDH à 3,990 UI/L, ALAT à 27 et ASAT à 65 UI/L urée, créatininémie, TP, TCA, fibrinogène, Anticorps antinuc-léaires, Anticardiolipides et protéinurie sont sans particularité. Le reste du bilan reste sans anomalies.

La patiente a bénéficié d'une corticothérapie en première intention à la dose de 1 mg/kg par jour, ensuite des IgV à la posologie de 1 g/kg par jour à j1 à renouveler à j3 vu l'absence de réponse à la corticothérapie ceci en plus de la transfusion des culots globulaires et plaquettaires.

Elle a accouché par voie basse après un travail spontané, d'un nouveau-né de 2900g à 37SA. Le bébé a bénéficié d'un bilan biologique revenu sans anomalies, mais pour la mère, son taux de plaquettes de contrôle à j1 de post partum a objectivé une thrombopénie sévère à 10000 e/ [mm] ^3 et une anémie sévère à 6g /dl d'hémoglobine et un début d'une insuffisance rénale et ceci malgré la corticothérapie et l'immunoglobulothérapie et la transfusion des culots plaquettaires et les culots globulaires.

24 heures après, soit deux jours plus tard de post partum, on constatait un purpura des épaules et de l'abdomen et des deux membres inférieurs, des céphalées, unedysarthrie voir une aphasie et une obnubilation en plus d'un syndrome hémorragique présenté par des épistaxis et des rectorragies. Devant ce tableau la patiente à été transféré dans un centre spécialisé et l'évolution était spectaculairement favorable avec six échanges plasmatiques (EP) en six jours.

III. DISCUSSION

Le purpura thrombotique thrombocytopenique est une microangiopathie thrombotique (MAT) associée historiquement à cinq manifestations principales rapportées par Moschowitz dès 1924: l'anémie hémolytique mécanique, la thrombocytopenie, la fièvre, l'atteinte rénale et l'atteinte neurologique [1]. Elles sont communes au cadre des micro angiopathies thrombotiques qui incluent le PTT, le syndrome hémolytique et urémique (SHU), et les syndromes dits apparentés comme la coagulation intravasculaire disséminée (CIVD), les thrombopénies induites par l'héparine (TIH), certaines formes du syndrome des antiphospholipides et le HELLP syndrome (hemolysis, elevated liver enzymes and low platelet).

Ces manifestations sont la conséquence d'un état pro thrombotique avec agrégation plaquettaire anormale aboutissant à la formation de microthrombi, responsables d'une hypoperfusion des organes touchés

et d'une anémie hémolytique « mécanique ». Ce syndrome apparaît plus fréquemment au deuxième trimestre en moyenne autour de 24 semaines d'aménorrhée [2]. Il s'agit d'une complication très sévère pouvant mettre en jeu le pronostic vital à très court terme et qui nécessite une prise en charge

spécialisée immédiate. Contrairement au syndrome HELLP, le PTT n'est pas amélioré par l'accouchement et justifie la mise en route d'échanges plasmatiques (comme dans notre observation).

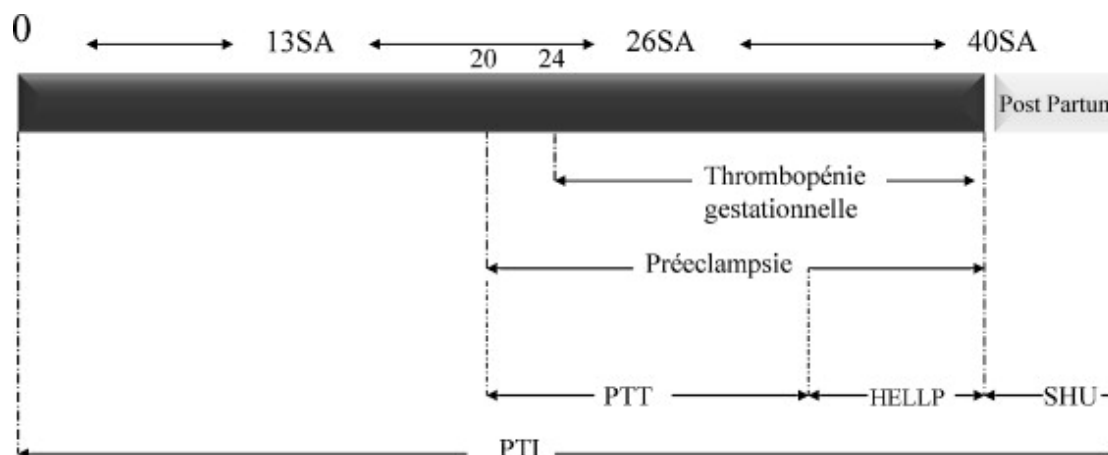


Fig. 1 : Étiologies des thrombopénies au cours de la grossesse en fonction du terme

PTI : purpura thrombopénique immunologique ; *PTT* : purpura thrombopénique thrombopathique ; *HELLP syndrome* ; *SHU* : syndrome hémolytique et urémique ; *SA* : semaines d'aménorrhée

En 1996, la découverte du rôle joué par une métallo-protéase (ADAMTS-13) dans le clivage du facteur Willebrand [2] ; [3], puis la mise en évidence de son déficit dans le PTT (mais pas dans les autres formes de MAT [4] [5]), a permis de préciser la physiopathologie de cette affection et de faire évoluer la classification des MAT. Un déficit sévère en métallo-protéase apparaît donc comme spécifique du PTT.

La mise en évidence d'auto-anticorps dirigés contre l'ADAMTS-13, dans les formes acquises a été la justification de l'utilisation récente du RITUXIMAB dans cette indication avec des résultats très prometteurs. L'incidence annuelle est de deux à sept cas par million d'habitants [6] et semble en augmentation. Elle touche essentiellement les femmes (sex ratio : 3F/1H). L'âge d'apparition de la première poussée se situe souvent dans la quatrième décennie bien que des formes plus tardives ou, au contraire, chez l'enfant, soient observées. La mortalité est d'environ 15 % [7], probablement sous-estimée en raison d'une mortalité précoce dans les 48 premières heures. La grande majorité des PTT est considérée comme idiopathique et de survenue sporadique. Des facteurs étiologiques sont retrouvés dans environ 10 % des cas [7] et correspondent aux PTT associés à la grossesse, à des infections, aux cancers et à certains médicaments.

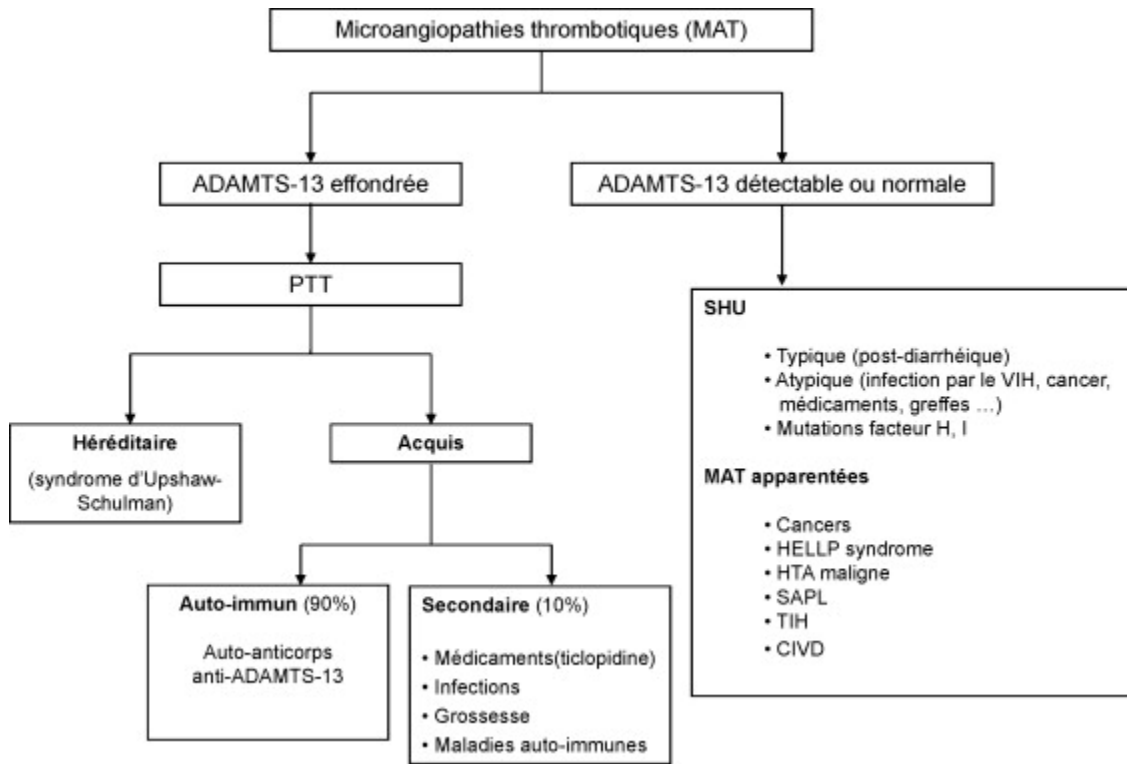


Fig. 2 : Classification schématique des microangiopathies thrombotiques (MAT) en fonction de l'activité de ADAMTS-13 : (a disintegrin and metalloproteinase with thrombospondin-I motifs)

PTT : purpura thrombopénique et thrombopathique ; *SHU* : syndrome hémolytique et urémique ; *MAT* : microangiopathie thrombotique ; *HELLP syndrome* ; *SAPL* : syndrome des anti-phospholipides ; *TIH* : thrombopénie induite par l'héparine ; *CIVD* : coagulation intravasculaire disséminée.

IV. CLINIQUE

Chez l'adulte, le PTT est une maladie survenant préférentiellement chez la femme (trois femmes pour un homme) au cours de la quatrième décennie. Le début de la maladie est brutal. Une phase prodromique associant asthénie, arthralgies, myalgies, douleurs abdominales et lombaires, pouvant évoquer un processus infectieux précède souvent de quelques jours la survenue du PTT. [8] [9]

Dans sa forme typique, le PTT associe cinq signes cardinaux : fièvre, manifestations neurologiques, insuffisance rénale, anémie hémolytique mécanique et thrombopénie périphérique. De manière générale, un PTT doit être systématiquement évoqué devant une bicytopénie (anémie plus thrombopénie) associée à une défaillance d'organe (le plus souvent neurologique et/ou rénale) et surtout chez la femme enceinte où la thrombopénie avait plusieurs étiologies. L'étiologie de la thrombopénie la plus grave devant être éliminée en 1er est le PTT (Fig. 3). Dans ce contexte, un antécédent personnel ou familial de pathologie auto-immune est également évocateur du diagnostic.

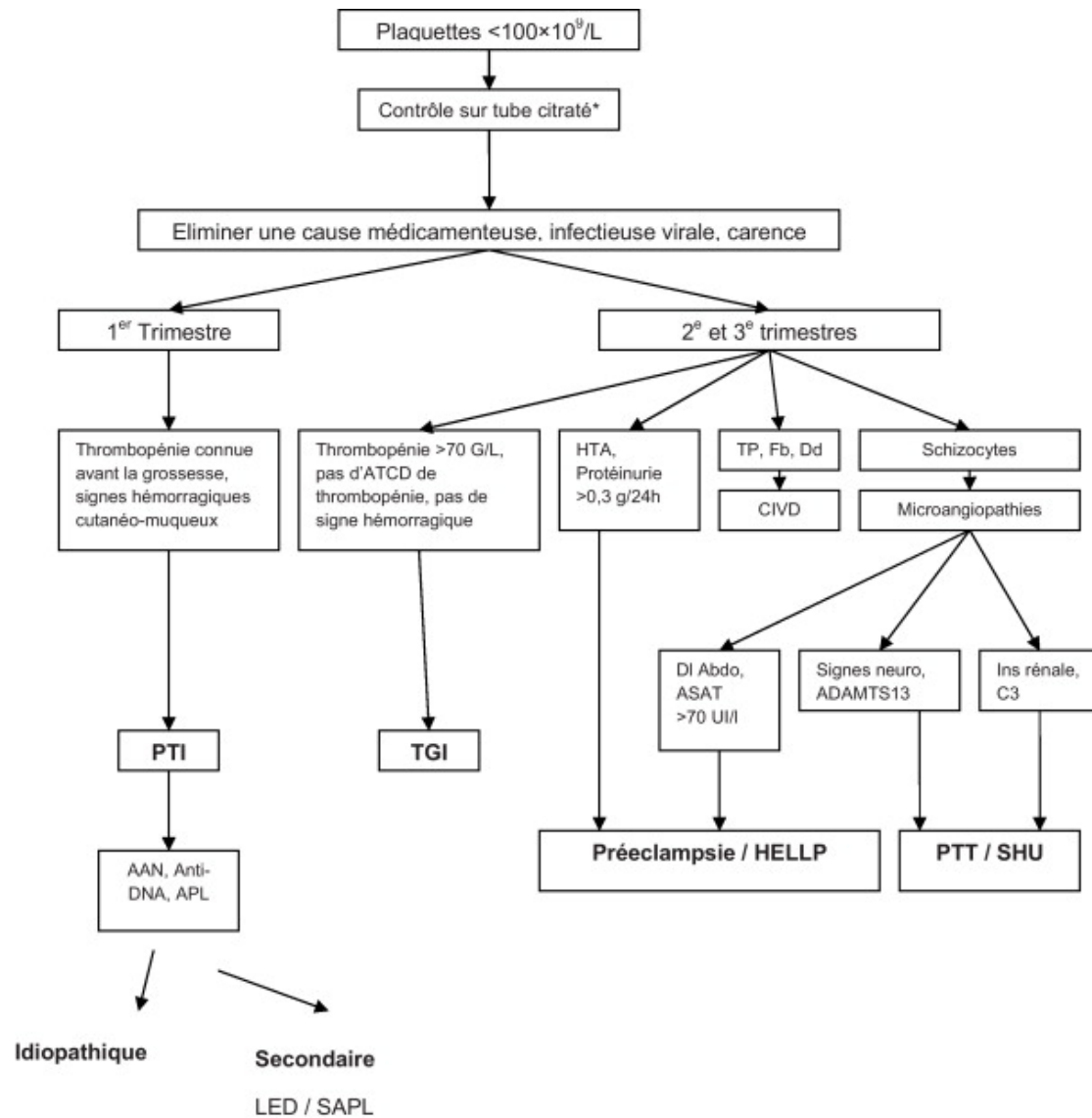


Fig. 3 : Démarche diagnostique devant une thrombopénie au cours de la grossesse. (D'après Federici L. et al. Presse Med 2008;37:1299–307)

HTA : hypertension artérielle ; TP : taux de prothrombine ; Fb : fibrinogène ; Dd : D-dimères ; CIVD : coagulation intravasculaire disséminée ; TGI : thrombopénie gestationnelle idiopathique ; HELLP : hemolysis, elevated liver enzymes, and low platelet count ; PTT : purpura thrombopathique thrombocytopénique ; SHU : syndrome hémolytique et urémique ; LED : lupus érythémateux disséminé ; SAPL : syndrome des antiphospholipides ; * : examen nécessaire en l'absence de syndrome hémorragique.

La fièvre est présente dans 59 à 98 % des cas. Elle pourrait être liée à la libération de substances pyrogènes au cours de l'ischémie tissulaire ou à un processus infectieux. Une atteinte neurologique est observée dans 84 à 92 % des cas. Celle-ci est caractérisée par son apparition brutale et sa fugacité, puisqu'elle peut atteindre différents territoires de manière intermittente, à quelques heures d'intervalle.

Elle peut se manifester par un tableau de confusion avec obnubilation, des céphalées, et des troubles de la conscience pouvant aller jusqu'au coma, un déficit sensitif ou moteur à type d'hémi-parésie, de dysarthrie, d'aphasie peut être observé. Les réflexes

ostéotendineux sont souvent vifs. Vingt pour cent des patients peuvent présenter une crise convulsive, voire un état de mal épileptique.

Une insuffisance rénale est retrouvée dans près de la moitié des cas. Elle est en règle modérée, sauf chez les patients ayant un antécédent de néphropathie sous-jacente. Dans d'autres cas, l'atteinte rénale peut se résumer à une protéinurie dont le débit est le plus souvent inférieur à 3 g 24 h⁻¹, ou à une hématurie. Les autres manifestations témoignent du caractère disséminé du PTT. L'atteinte digestive se caractérise par des douleurs abdominales avec vomissements. Des atteintes pancréatiques peuvent être observées. Une

atteinte cardiaque est possible et se manifeste par des douleurs thoraciques et des troubles de la repolarisation sur l'électrocardiogramme. Plus rarement, une atteinte pulmonaire avec défaillance respiratoire et des atteintes oculaires ont été décrites.

Parfois, il peut ne pas y avoir de défaillance d'organe. Le PTT est alors purement hématologique et se révèle par un syndrome hémorragique avec purpura, ecchymoses, hématomes, voire saignement viscéral ou cérébro-méningé, ou encore par une asthénie d'apparition récente, dans le cadre du syndrome anémique. Dans le PTT congénital, la première poussée de la maladie a lieu en général avant l'âge de 10 ans et parfois même dès la naissance.

La symptomatologie initiale est assez stéréotypée. Elle associe une anémie hémolytique mécanique, une thrombopénie parfois profonde, et une atteinte rénale d'intensité variable [8] [9].

Chez le nouveau-né, l'hémolyse et la thrombopénie inexpliquées motivent parfois une exsanguino-transfusion. Un épisode de PTT congénital peut survenir spontanément ou être déclenché par des épisodes infectieux banals. Au début, les poussées sont totalement régressives mais après quelques années d'évolution peuvent apparaître une insuffisance rénale chronique et une atteinte ischémique d'autres organes, en particulier du cerveau. Souvent, l'atteinte hématologique est également chronique, et associe un fond d'hémolyse et une thrombopénie modérée. L'anamnèse familiale retrouve parfois des atteintes similaires ou des tableaux d'hémolyse néonatale fatale dans la fratrie. En revanche, l'étude des parents ne retrouve jamais de déficit sévère de la protéase, ce qui suggère un mode de transmission récessif [8] [9].

V. EXAMENS COMPLÉMENTAIRES

L'anémie est profonde. Son caractère régénératif est défini par un taux de réticulocytes supérieur ou égal à $120 \times 10^9 \text{ l}^{-1}$. Le frottis sanguin met en évidence des schizocyte, traduisant le caractère mécanique de l'hémolyse. La recherche de schizocytes doit être répétée, ceux-ci pouvant apparaître de manière retardée par rapport aux cytopénies. Le frottis sanguin peut retrouver par ailleurs une anisocytose, une poikilocytose, et une polychromatophilie. Le test de Coombs est négatif. L'hémolyse est caractérisée par des taux sériques de bilirubine libre et de lactate déshydrogénase (LDH) élevés (l'élévation du taux de LDH est également liée à la souffrance viscérale), et par un taux d'haptoglobine sérique effondré. La thrombopénie est constante et souvent inférieure à $20 \times 10^9 \text{ l}^{-1}$. L'hémostase est par ailleurs le plus souvent normale, hormis des D-dimères qui peuvent être discrètement élevés. Une hyperleucocytose composée de polynucléaires neutrophiles est fréquente. Elle est en général inférieure à $20 \times 10^9 \text{ l}^{-1}$.

Les autres examens complémentaires de routine incluent un ionogramme sanguin et urinaire complet avec calcul du débit de filtration glomérulaire, un dosage de la protéinurie des 24 heures, et une étude du sédiment urinaire. La recherche d'un processus infectieux ayant pu jouer le rôle de facteur déclenchant et pouvant entretenir le processus microangiopathique est systématique. Sur certains terrains, un accès palustre doit être évoqué dans le cadre du diagnostic différentiel.

La recherche d'auto anticorps (en particulier des anticorps antinucléaires) peut être utile puisque leur positivité est le plus souvent associée à un déficit sévère acquis en ADAMTS13 ; ils permettent donc de suggérer fortement le diagnostic de PTT acquis. L'étude de l'activité d'ADAMTS13 doit être systématiquement réalisée dans tout syndrome de MAT chez l'enfant, afin de ne pas méconnaître un PTT congénital, dont la réponse à la plasmathérapie est excellente. Par ailleurs, il faut savoir évoquer le diagnostic de PTT chez des enfants ayant apparemment un tableau de purpura thrombopénique idiopathique ou de syndrome d'Evans ne répondant pas aux thérapeutiques classiques. En effet, certains de ces enfants peuvent avoir un authentique PTT, et la mise en évidence d'une activité de la protéase effondrée permet alors de redresser le diagnostic [10]. Chez l'adulte, l'étude de l'activité d'ADAMTS13 en pratique clinique est en cours d'évaluation dans le cadre de protocoles d'étude. Dans tous les cas, pour être interprétable, le dosage de l'activité de la protéase doit être réalisé avant tout traitement par plasma.

Histologiquement, le PTT est caractérisé par l'occlusion des capillaires et des artérioles terminales par des thrombi-plaquettaires associés à un matériel hyalin au niveau endothélial et sous-endothélial. Il n'y a pas de nécrose, ni de lésions de vasculite, ni d'infiltrat inflammatoire périvasculaire. Ces lésions peuvent être mises en évidence dans la plupart des organes: système nerveux central, rein, peau, cœur, poumons, œil, tube digestif, pancréas et surrénales. En pratique, la documentation histopathologique est rarement nécessaire pour poser le diagnostic de PTT. Le rein est l'organe le plus classiquement biopsié. Les biopsies gingivales, osseuses ou ganglionnaires ne sont plus réalisées. Les lésions observées ne sont pas spécifiques du PTT, puisqu'elles peuvent se rencontrer dans d'autres phénomènes de microangiopathie. Différentes études ont pu montrer que les lésions observées au cours du PTT étaient caractérisées par la présence de thrombi plaquettaires riches en FvW, alors que dans le SHU, ces thrombus étaient plutôt riches en fibrine, ce qui (entre autres) permet de distinguer ces deux entités.

VI. TRAITEMENT

Le traitement du PTT est toujours une urgence. Compte tenu de la fréquence des souffrances viscérales à la phase aiguë et de leur évolution potentiellement grave, il faut préférer une hospitalisation en unité de réanimation tant que le taux de plaquettes reste inférieur à $50 \times 10^9 \text{ l}^{-1}$.

a) *Plasmathérapie*

Chez l'adulte, le traitement repose actuellement sur la réalisation d'échanges plasmatiques [11] [12] qui permettent l'apport de volumes importants de plasma (et donc d'ADAMTS13). Si ceux-ci ne peuvent être réalisés en urgence, des perfusions de grands volumes de plasma ($30 \text{ ml kg}^{-1} \text{ j}^{-1}$) pourront être commencées [13] [14]. Les perfusions de plasma à de telles posologies comportent cependant un risque de surcharge hydrosodée, de protéinurie de surcharge [13] ou d'hyperprotidémie potentiellement responsable d'un syndrome d'hyperviscosité. L'augmentation de la pression oncotique plasmatique peut elle-même aggraver l'insuffisance rénale. Ainsi, si les seules perfusions de plasma permettent parfois de traiter les PTT sans inhibiteur plasmatique détectable, les PTT associés à un inhibiteur plasmatique nécessitent rapidement des échanges plasmatiques permettant d'apporter des volumes importants de plasma, pendant parfois plusieurs semaines. Furlan a rapporté que les échanges plasmatiques pourraient stabiliser le titre de l'inhibiteur chez certains patients, et ainsi empêcher son augmentation [15]. Le traitement est à poursuivre jusqu'à la normalisation stable du chiffre de plaquettes (plus de $150 \times 10^9 \text{ l}^{-1}$), pendant au moins 48 heures. Il faut veiller à ce que les taux de réticulocytes et de LDH soient en cours de décroissance.

La durée du traitement peut être très variable, et il est important de poursuivre les échanges plasmatiques quotidiens avec persévérance jusqu'à la normalisation des plaquettes. Parfois, plusieurs dizaines d'échanges plasmatiques peuvent être nécessaires. La décroissance du rythme des échanges plasmatiques doit être progressive et il faut surveiller l'absence de signes de reprise évolutive, qui doivent motiver à nouveau la réalisation d'échanges plasmatiques quotidiens. L'étude du titre de l'inhibiteur d'ADAMTS13 en fin de traitement d'attaque devrait permettre, dans l'avenir, de mieux adapter la cinétique de décroissance du traitement, et d'anticiper les épisodes d'aggravation.

b) *Traitements associés*

Différents traitements ont été proposés en association aux échanges plasmatiques. Les corticoïdes à fortes doses ont été rapportés comme efficaces dans 56 % des PTT purement hématologique [11]. L'origine souvent auto-immune du PTT de l'adulte est un argument supplémentaire pour leur utilisation. Il n'existe cependant pas d'étude randomisée permettant

de démontrer clairement leur efficacité. Bien que le niveau de preuve soit donc faible, une corticothérapie par méthylprednisolone ($1 \text{ mg kg}^{-1} \text{ j}^{-1}$ pendant 3 semaines avec décroissance progressive) doit être discutée, en l'absence de contre-indication (comme en particulier une infection évolutive). Leur administration se fait au décours immédiat des échanges plasmatiques. Les antiagrégants plaquettaires sont couramment utilisés puisqu'il existe dans le PTT (comme dans toutes les MAT) une hyperagrégabilité plaquettaire [16]. Ils augmentent cependant le risque de saignement [17]. Ils sont généralement introduits lorsque le taux de plaquettes est supérieur à $50 \times 10^9 \text{ l}^{-1}$.

Les autres traitements comme les perfusions d'héparine, de fibrinolytiques, de prostacycline ou de vitamine E sont inutiles et parfois dangereux. Certaines études ont rapporté l'efficacité des colonnes de protéine A staphylococcique, en particulier chez des patients présentant un PTT dans un contexte de cancer. [18]. L'efficacité de ces colonnes chez les patients ayant un inhibiteur plasmatique de la protéase n'a pas été évaluée à ce jour. Dans un proche avenir, une protéase purifiée ou recombinante devrait pouvoir être produite et se substituer au traitement à base de plasma.

Durant la grossesse, l'utilisation de l'azathioprine [19], de l'hydroxychloroquine [20] et de la disulone est également autorisée. L'utilisation du rituximab est en théorie contre-indiquée pendant la grossesse même si une étude rétrospective n'a pas montré de malformations majeures ni de risque de prématurité après grossesses accidentelles sous ce médicament [21]. Son utilisation au cours de la grossesse ne peut néanmoins s'envisager qu'après avis spécialisé dans des situations de PTI très sévères réfractaires aux autres thérapeutiques. Aujourd'hui, il reste prudent de contre-indiquer une grossesse dans l'année qui suit l'usage du rituximab en raison du manque de recul sur une éventuelle fœtotoxicité. Nous ne disposons d'aucune donnée concernant la sécurité d'emploi des agonistes de récepteur de la thrombopoïétine (romiplostim, eltrombopag) au cours de la grossesse. Un risque d'embryo-fœtotoxicité a été rapporté à forte dose chez l'animal avec le romiplostim [22] et en l'absence de nouvelle donnée, leur utilisation est contre-indiquée.

Durant l'allaitement, l'azathioprine et l'hydroxychloroquine sont autorisés, la disulone doit être évitée. Les corticoïdes sont autorisés en sachant que l'enfant reçoit environ 4 % de la dose administrée à la mère avec un pic lacté de prednisone survenant une à deux heures après la prise de prednisone par la mère. En cas de posologies modérées (prednisone inférieure à 50 mg/j) et pour une brève période (inférieure à une semaine), l'allaitement se fera sans précaution particulière. Dans le cas contraire, il faudra prévoir de décaler la tétée de trois à quatre heures par rapport à la prise orale de

prednisone, ce qui permet des taux lactés de prednisone bien plus faibles.

c) *Traitement symptomatique*

Le traitement symptomatique s'applique à tout type de MAT. Il est important corriger une hypertension artérielle par un inhibiteur de l'enzyme de conversion. L'objectif tensionnel doit être de 120/80 mmHg. Une supplémentation par folates est systématiquement réalisée chez ces patients ayant une régénération médullaire importante. Des transfusions de concentrés érythrocytaires seront réalisées afin de maintenir un taux d'hémoglobine supérieur ou égal à 8 g dl⁻¹. En l'absence de saignement grave, les transfusions de plaquettaires sont contre-indiquées car elles risqueraient d'entretenir et même de majorer la formation de microthrombi [23]. Le traitement d'un éventuel facteur déclenchant est indispensable. [24] Un traitement anticonvulsivant doit être discuté s'il existe des antécédents d'épilepsie.

d) *Conduite à tenir lors de l'accouchement*

L'existence d'un PTT n'est pas en soit une indication à la réalisation systématique d'une césarienne et l'accouchement aura lieu par voie basse, sauf en cas de contre-indication obstétricale [25] [26] (Recommandations nationales Protocole national de soins disponibles sur. L'utilisation de manœuvres instrumentales (forceps, ventouse, spatule) devra cependant être évitée. En cas de PTT sévère réfractaire résistant aux traitements précités, l'indication éventuelle d'une césarienne ou d'un accouchement par voie basse sera discutée au cas par cas par l'obstétricien. Une patiente multipare ayant eu plusieurs accouchements sans problèmes obstétricaux peut par exemple accoucher par voie basse, même en cas de thrombopénie profonde.

Pour l'enfant, la probabilité d'avoir une thrombopénie néonatale (< 100 × 10⁹/L) est d'environ 10 à 20 % [27] [28] [29] mais même en cas de thrombopénie profonde, le risque d'hémorragie grave est très faible (probablement < 1 % [30]). Les facteurs prédictifs de thrombopénie néonatale sont : des antécédents de thrombopénie néonatale lors de précédents grossesses, le statut splénectomisé de la mère avec un risque majoré si celle-ci est en échec de la splénectomie [28]. Les procédures qui visaient à rechercher une thrombopénie fœtale avant l'accouchement (ponction du cordon in utero) ou en début de travail (ponction du scalp) ont été abandonnées.

e) *Après l'accouchement*

Les mesures générales de prévention (bas de contention, lever précoce) ne devront pas être négligées. Les corticoïdes seront arrêtés en post-partum si les plaquettes sont supérieures à 30 × 10⁹/L. L'allaitement est autorisé si la mère ne prend pas de

médicaments le contre-indiquant (cf. supra). Pour l'enfant, il est important de vérifier le chiffre des plaquettes à la naissance au sang du cordon et dans les cinq jours suivants la naissance car les plaquettes peuvent continuer à diminuer dans les jours suivants l'accouchement [30]. Si l'enfant a moins de 50 × 10⁹/L plaquettes à la naissance ou dans les jours suivants, il est recommandé de pratiquer une échographie transfontanellaire afin de vérifier l'absence d'hémorragie intracrânienne. Un traitement par corticoïdes à 1 mg/kg par jour ou par IgIV à la dose de 1 g/kg sera indiqué si ses plaquettes chutent en dessous de 20 × 10⁹/L [31].

La plupart des études publiées suggère que la grossesse peut favoriser une poussée du PTT avec une aggravation de la thrombopénie nécessitant une introduction ou une modification thérapeutique chez environ un tiers des patientes [27] [32] [33][34] [35]. Il ne paraît pas légitime aujourd'hui de contre-indiquer une grossesse à une femme atteinte de PTT en dehors de patientes atteintes d'un PTT sévère réfractaire aux traitements de référence. Le suivi par une équipe médico-obstétricale habituée à prendre en charge ce type de patientes est cependant préférable.

f) *Purpuras thrombotiques thrombocytopéniques réfractaires*

Chez les patients réfractaires (absence d'amélioration du nombre de plaquettes après 5 jours de traitement), des échanges plasmatiques biquotidiens peuvent être réalisés, en association à des injections hebdomadaires de vincristine (1,5 à 2 mg semaine⁻¹ pendant 3 à 4 semaines).[36] [37] Des perfusions d'immunoglobulines polyvalentes (0,5 g kg⁻¹ j⁻¹, 4 jours) ont été rapportées comme efficaces par certains auteurs. [38] Cependant, la réalisation simultanée d'échanges plasmatiques rend leur utilisation et l'évaluation de leur efficacité difficiles. En l'absence de réponse, chez les patients présentant des signes neurologiques malgré un traitement intensif par échanges plasmatiques, un traitement par cyclophosphamide a pu être proposé [39]

g) *Rechutes*

Une rechute peut survenir dans 30 % des cas. À la phase aiguë, ces patientes peuvent être traitées selon les mêmes modalités qu'au diagnostic. Chez les patients présentant des rechutes à répétition, une splénectomie peut être proposée en période de rémission. [40] [41] Chez les patients adultes conservant un déficit sévère en ADAMTS13 en rémission, des résultats intéressants ont été rapportés avec l'utilisation d'anticorps monoclonaux dirigés contre l'antigène CD20 des lymphocytes B (RITUXIMAB) [42]

h) *Stratégie thérapeutique*

Le traitement du PTT reste encore largement empirique et peut varier selon les équipes. Cependant, les données de la littérature et l'établissement de

groupes de travail tendent à mettre en place des schémas thérapeutiques généraux (Fig. 4).

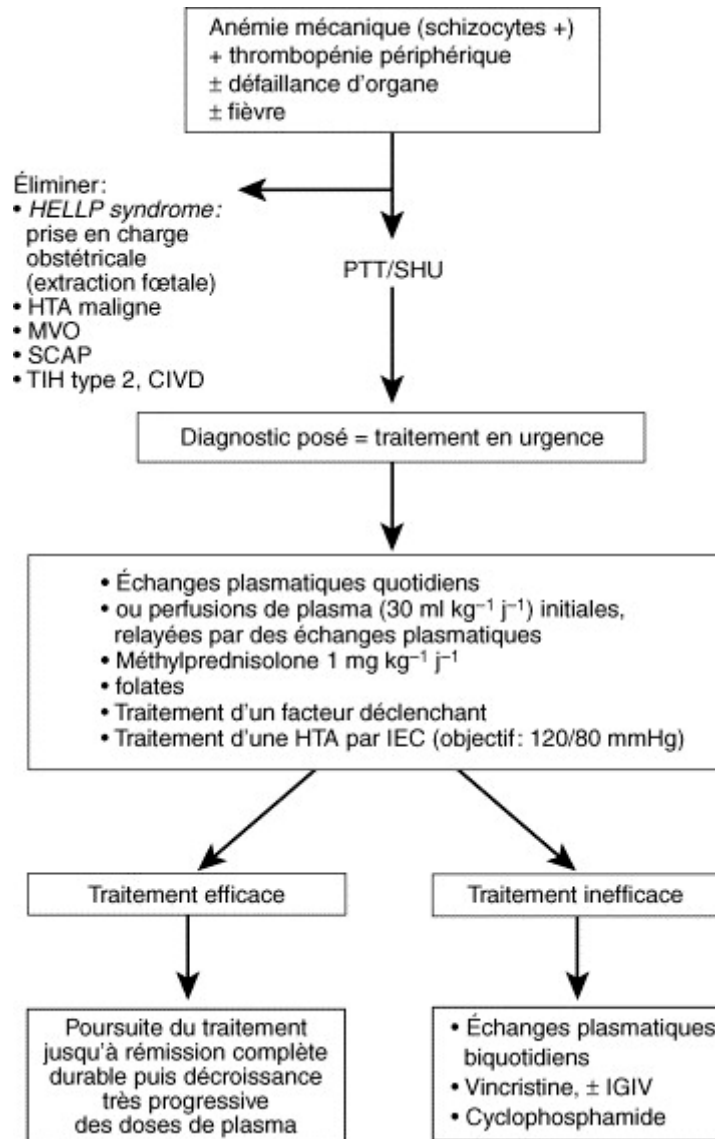


Fig. 4 : Stratégie thérapeutique devant un purpura thrombotique thrombocytopénique (PTT)

IEC : inhibiteurs de l'enzyme de conversion ; HELLP syndrome ; MVO : maladie veino-occlusive ; SCAP : syndrome catastrophique des antiphospholipides ; TIH : thrombopénie induite par l'héparine. CIVD : coagulation intravasculaire disséminée ; IGIV : immunoglobulines par voie intraveineuse.

VII. PRONOSTIC

Le pronostic du PTT étant difficile à établir, des mesures de réanimation doivent être systématiquement proposées en cas de besoin. Ainsi, des séances d'épuration extrarénale sont proposées dans les situations où l'atteinte rénale est sévère. Une défaillance respiratoire doit motiver un transfert précoce en réanimation afin de mettre en route une ventilation si possible non invasive afin d'éviter une intubation, particulièrement dangereuse dans ce contexte (risques hémorragique et infectieux). Une étude réalisée à partir de trente-huit patients a tenté d'établir un score pronostique au moment du diagnostic à partir de la sévérité

de l'atteinte neurologique et de la biologie standard [43]. Dans cette étude, les patients dont l'évolution a été fatale avaient un score significativement plus élevé que ceux ayant survécu. La valeur pronostique de ce score n'a cependant pas été confirmée par d'autres équipes [44]. Une autre étude a rapporté la valeur pronostique de la cinétique de correction des taux de plaquettes et de LDH en début de traitement. D'après cette étude, la survie était significativement augmentée chez les patients dont les taux de plaquettes et de LDH commençaient à se corriger après 3 jours de traitement [44].

Des travaux ont montré que les patients ayant un inhibiteur plasmatique d'ADAMTS13 nécessitent des volumes de plasma plus importants et une durée de traitement plus longue que ceux n'ayant pas d'inhibiteur. Chez ces patients, on constate fréquemment des épisodes d'aggravation sous traitement ou lors de la décroissance des doses de plasma, qui nécessitent de reprendre un traitement intensif [45]. Les études à venir devraient permettre de mieux préciser le moment à partir duquel certains immunosuppresseurs doivent être introduits chez ces patients. Comme il a été précisé plus haut, l'évaluation de l'activité d'ADAMTS13 en rémission permet de déterminer le risque de rechute. Les progrès majeurs réalisés dans la compréhension des mécanismes physiopathologiques des MAT permettent désormais de proposer une classification fondée sur les différents facteurs de risques et facteurs déclenchants identifiés. Ces découvertes devraient permettre, dans un futur proche, la mise en place de thérapies ciblées, ayant pour objectif de suppléer de manière spécifique les protéines manquantes. Chez l'adulte, les perspectives thérapeutiques sont également de mieux définir la place et les modalités d'utilisation des immunosuppresseurs [45].

VIII. CONCLUSION

La survenue d'une thrombopénie au cours de la grossesse est le plus souvent en rapport avec une thrombopénie gestationnelle sans gravité. Néanmoins, elle peut être le premier signe d'une maladie grave qu'il faudra savoir reconnaître tôt à travers des signes simples que sont la présence d'une hypertension artérielle, d'une perturbation du bilan hépatique, d'une protéinurie ou d'une anémie hémolytique mécanique avec schizocytes. Dans le cas du PTT, il importe surtout d'éviter une escalade thérapeutique injustifiée pendant la grossesse mais en revanche de bien préparer l'accouchement grâce à une collaboration étroite entre l'obstétricien et un interniste ou un hématologiste habitué à prendre en charge ce type de pathologie. En plus les études ont montré qu'une grossesse peut être envisagée sous traitement antithrombotique après rémission complète d'un tableau de PTT. Cependant, une information claire et loyale doit être donnée sur les risques élevés de rechute. Une surveillance rapprochée est indispensable en milieu expérimenté dans la prise en charge du PTT. Une plasmathérapie immédiatement entreprise en cas de survenue des premiers stigmates évoquant une récurrence.

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Study on Knowledge Attitudes and Practices Regarding menstrual Hygiene among Rural Women in Kerala

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Abstract- Background: Menstruation is a phenomenon unique to females. It carries with it the joy of being a mother and also the sorrow of guilt due to unclean feeling. Orthodox Indian culture does not allow open discussion about it and the associated problems.

Aims: To measure the knowledge, attitude, & practice regarding menstrual hygiene among the adolescent girls & women in rural area aged between 15-50 years, in Anjarakandy Panchayat of Kannur district of Kerala.

Settings and design: It is a cross sectional study. The data was collected by interview method by MBBS students under the supervision of investigators. There were 217 women who could be contacted during our visit to 3 clusters (in 3 wards) of households of Anjarakandy Panchayat. The first house was randomly chosen & subsequently each adjacent house was taken. All the eligible women who could be contacted during the allotted time were included.

Material and Methods: The questionnaire consisted of both open ended & closed ended questions.

Keywords: menstruation, Kerala, sanitary pads.

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Material and Methods: The questionnaire consisted of both open ended & closed ended questions.

Statistical analysis: The collected data was tabulated in Microsoft excel and it was analyzed in SPSS version 11.0. Chi-square test, proportions and percentage was used for the data analysis.

Results: Most (76%) ladies have a positive attitude towards menstrual hygiene. Main reason (35%) for not using sanitary napkins was economic reasons. However 29% of the women opined that they were not aware of it & another 29% opined that they did not like it.

Conclusion: 75.6% of women of the study population knew that menstrual hygiene is very important. Another 21.7% opined not important that it was. The attitude needs to be reinforced with the help of the stake holders in the community.

Keywords: menstruation, Kerala, sanitary pads.

I. INTRODUCTION

Menstruation & menstrual practices are still clouded by taboos & sociocultural restrictions. Rural women remain ignorant of the scientific facts & hygienic health practices which sometimes

results into adverse health outcomes.¹ Due to lack of infections are common in rural women thus affecting their health & productivity.²

In most societies the basis of conduct norms & communication about menstruation is the belief that menstruation must remain hidden. Menstruation must be concealed verbally. Different religions have different beliefs about menstruation. Some religion describes a menstruating woman as ritually unclean. The taboo is so great that not only the woman, women are prohibited in participating in routine life activities, during periods. She must be purified before she is allowed to return to her family. South Indian women who are menstruating are not allowed in the household for a period of 3 nights. Hygienic practices during menstruation remains poor in rural India. Government of India, under NRHM made arrangements to provide 322 lakh sanitary napkins but only 34% of these have been utilized in the country. When the data of State wise uptake was analyzed an astonishing fact was found out; >80% of these low cost sanitary pads were distributed in the state of Kerala.³

Thus the present study was conducted among rural women in the Anjarakandy Panchayat, Kannur district of Kerala. It is a descriptive type of cross section study done at the field practice area of Kannur Medical College Anjarakandy.

II. OBJECTIVES

To measure the knowledge, attitude, & practice regarding menstrual hygiene among the adolescent girls & women in rural area aged between 15-50 years, in Anjarakandy Panchayat of Kannur district of Kerala.

III. MATERIALS & METHODS

The data collection lasted for 2 months (April-May 2009). Women in the age group of 15-50 years of age were interviewed by 12 MBBS students. There were 217 women who could be contacted during our visit to 3 clusters (in 3 wards) of households of Anjarakandy Panchayat. We obtained the ethical consent from the institutional ethics committee of Kannur Medical College Anjarakandy. The first house was randomly chosen & subsequently each adjacent house was taken. All the

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eligible women of these houses who could be contacted during the allotted time were included. Pre-tested questionnaire consisting of both open ended & closed ended questions was used for the study. Data was collected by questionnaire filled by participant under the supervision of investigators. The collected data was tabulated in Microsoft excel and it was analyzed in SPSS version 11.0

IV. RESULTS

Table 1 shows the baseline demographic characteristics of the study population. 33.64% of the population belonged to 25-34 years age group. 76.1% were educated till high school and above. 42.8% were very poor. 74% were housewives. 76.5% were married.

Table 1 : Demographic characteristics of study population

	Number of ladies	Percentage
Religion		
Christian	39	18%
Hindu	173	79.7%
Muslim	5	2.3%
Age in years		
15-24	62	28.57%
25-34	73	33.64%
35-44	61	28.12%
>45	21	9.67%
Educational status		
Primary & middle school	52	23.96%
High(Higher)secondary school	127	58.52%
Degree	33	15.4%
Professional course	1	0.46%
No response	4	1.84%
Income		
SES 1	93	42.85%
SES 2	48	22.11%
SES 3	25	11.52%
SES 4	10	4.60%
SES 5	28	12.89%
No response	13	5.99%
Occupation		
Student	43	19.8%
House wife	161	74.2%
Working	13	6%
Marital status		
Married	166	76.5%
Unmarried	51	23.5%

Pie chart 1 clearly states that most (76%) ladies have a positive attitude towards menstrual hygiene. 1% said that it was not important to know about menstrual hygiene.

Table 2 describes the Knowledge, attitudes and practices about the ideal absorbent used by the girls. Main reason (35%) for not using sanitary napkins was economic reasons. However 29% of the women opined that they were not aware about it & another 29% opined that they did not like it. Further probing questions indicated that they were not aware regarding the method of its disposal. These points need to be addressed before suggesting the use of sanitary napkins. 68% of the women of the study population reuse their cloth during their periods. 43.67% of the women of the study population use soap to clean the

reused cloth during their period. Also 31% of women were using dettol for cleaning the cloth before re-use. 76.5% of the women of the study population took bath twice per day during their periods. 99% of women were taking bath atleast once a day during the periods. 100% of the women clean their genitalia as well as wash their hands after changing pad/cloth.

Table 2 : Knowledge, attitudes and practices about the ideal absorbent used by the girls

	FREQUENCY	PERCENTAGE
SOURCE of information		
Mother	195	89.9%
Relative/Friend	11	5.1%
Media	9	4.1%
Other	2	0.9%
IDEAL ABSORBENT TO BE USED		
Sanitary napkin	87	40.1%
Sanitary napkin & clean cloth	3	1.4%
Clean cloth	126	58.5%
Any cloth	1	0.5%
ABSORBENT ACTUALLY USED		
Sanitary napkin	90	41.5%
Sanitary napkin & cloth	13	6%
Cloth	114	52.5%

Table 3 shows that there is a statistically significant difference in the use of sanitary napkins as compared to cloth in educated and uneducated group of ladies but not according to the occupation or marital status.

Table 3 : Relation b/w variables and absorbent used

	SANITARY NAPKIN		CLOTH		Statistics
	No	%	No	%	
EDUCATION					
Professional	18	53	16	47	Chi-square=5.93, d.f.=2, p= 0.049
Higher secondary/High school	66	52	61	48	
Primary	17	32.7	35	67.3	
No response	2	50	2	50	
OCCUPATION					
Student	20	46.6	23	53.4	Chi-square=0.501, d.f.=2, p= 0.77
House wife	78	48.2	83	51.8	
Working women	5	38.5	8	61.5	
MARITAL STATUS					
Married	77	46.4	89	53.6	Chi-square=0.33, d.f.=1, p= 0.565
Unmarried	26	50.9	25	49.1	
0	0		3	100	
≤ 1	29	74.3	10	25.7	
≥ 2	41	36.2	72	63.8	

V. DISCUSSION

Menstruation is an extremely complex process involving different hormones, sexual organs, and nervous system. The present study has been compared in the light of literature available on the subject. Dasgupta A et al conducted a community based cross sectional study in 2008 among 160 women in West Bengal and found that 108(67.5%) girls were aware about menstruation prior to attainment of menarche. Mother was the 1st informant regarding menstruation in case of 60(37.5%)girls.138(86.25%)girls believed that it is a physiological process.78 (48.75%) girls knew the use of sanitary pads during menstruation. Regarding practices only 18(11.25%) girls used sanitary pads

during menstruation. For cleaning purpose, 156(97.5%) girls used both soap& water. Regarding restrictions practiced 136(85%) girls practiced different restrictions during menstruation.¹ In the current study we did not study the different restrictions, but 76% had a positive attitude towards menstrual bleeding. 30% of women in the current study who reused the cloth, cleaned it with dettol and/or soap. Using dettol is not an advisable practice nor is it necessary. Use of chemicals like dettol may be harmful if traces are left behind as it may cause rash/inflammation. So also if the soap is not thoroughly rinsed out by washing, it may cause irritation. There is a need to educate the women on these points.

Singh AJ in 2006 conducted a qualitative study among 1205 women in rural north India using focus

group discussion method with the help of female anthropologist, 6 traditional birth attendants, 2 health workers, 2 local medical practitioners, 2 teachers, 2 opinion leaders, and Anganwadi workers. They found that only about 0.4% of women used sanitary napkins during menses.² The current study 103 (47.4%) ladies out of the total 217 used sanitary napkins. The NRHM Kerala state has provided low cost sanitary pads at 2 Rs/ pad. The study thus clearly states the utilization of these services by the women even among rural women of Kerala. 60% of those women who did not use sanitary pads cited the reason as either they did not know or because they did not like it. The main reason that we later found was that they were unaware of the disposal of these pads. They can thus be educated on these issues of pad disposal.

Although the current study was quantitative study and not a focus group discussion still the findings can be of wide scientific interest.

Adhikari P et al conducted a study in 2007 among 150 female students in Nepal & found that 94 % of them were not properly maintaining menstrual hygiene. Only 6% of them knew that menstruation is a physiological process. 36.7% knew that it was caused by hormones. 94% of them used pads during periods but only 11.3% disposed it appropriately. Overall knowledge & practice were 40.6% & 12.9% respectively. They also recommended that most of the girls spray water by touching onto gold; thus in turn following the age-old ancestral rules.⁴ We found that such practices were not so common in our study setting in rural Kerala. The ladies in the current study setting disposed their pads appropriately.

Rao R et al conducted an interventional study in 2003-2004 among a stratified cluster of 791 students belonging to 29 colleges in Karnataka & it was found that awareness regarding menstrual hygiene was about 77.2% before started & it increased to 95.6% after the awareness program.⁵ This study clearly showed that an educational intervention program can bring about a desirable change in knowledge.⁵ In the current study due to resource constraints, in terms of funding we could not manage to take up any sort of interventions.

Fernandes M has authored a report titled Menstrual Hygiene in South Asia a neglected issue for wash programmes (water, sanitation, and hygiene) in 2008. The study was conducted on 2579 women in north India & was found that 89% used cloth, 2% used cotton wool, 7% sanitary pads, & 2% ash as an absorbent. Majority of participants quoted high cost & unavailability for not using sanitary pads. 14% of women suffered from menstrual infection. 41% of women were unaware of menstrual hygiene.⁷ The current study states that there was a statistically significant difference in the use of sanitary napkins as an absorbent as compared to cloth in educated and uneducated group of ladies but not according to the occupation or marital status. We

75.6% of women of the study population know that menstrual hygiene is very important. Another 21.7%

VI. CONCLUSIONS AND RECOMMENDATIONS

75.6% of women of the study population know that menstrual hygiene is very important. Another 21.7% opined that it was important. The attitude towards menstrual hygiene is favorable in the study population. This may be due to universality of education even in the remote rural area of Kerala state. The study also shows that there is a statistically significant difference in the use of sanitary napkins as compared to cloth in educated and uneducated group of ladies but not according to the occupation or marital status. The attitude needs to be reinforced through health awareness programmes to have sustained behavioral impact. These can be carried out at Primary health centres, subcentres, Maternal and Child Health clinics and also through medical auxiliaries like ASHAs and Anganwadi workers. Women from different neighbourhoods/ towns/ cities from the same state should be studied to come to a more authentic conclusion. Due to feasibility and time constraints we could not do this as a part of our exercise. Such multicentric studies can be done which will prove to be of great interest for the scientific community as a whole.

VII. LIMITATIONS

We did not use qualitative methods of data collection due to paucity of time and money. We also did not use random sampling but since the population of Anjarakandy area was homogeneous there is no reason for bias in results.

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Grossesse Sur Uterus Bicorne Menee a Terme Apropos D'un Cas Avec Revue De La Litterature

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Abstract- Frequency of uterine malformations have an impact on reproduction is difficult to assess. Their detection requires a specific review (hysterosa-lpingogram, hysteroscopy, laparoscopy). Spontaneous fertility can be altered depending on the type of uterine anomaly. All these anomalies can affect the evolution of the design type of false early and late layers of ectopic pregnancy of preterm labor, premature delivery of vascular pathologies of pregnancy and growth retardation intrauterine. Ovarian function is not changed. The uterus bicornis is best known defects and represents about half of the anomalies of the uterus. Surgery, including endoscopic allows precise diagnosis, assessment of prognosis and treatment improves the chances of conception and evolution of pregnancies. The occurrence of such a pregnancy is a dangerous situation that can lead to maternal death, but early diagnosis and proper monitoring can carry pregnancies to term of malformed uterus. Ultrasound screening should enable the systematic identification of such cases to take preventive measures are needed.

Keywords: *bicornuate uterus; uterine malformation, pregnancy.*

GJMR-E Classification : *NLMC Code: WP 660, WS 360*



GROSSESSE SUR UTERUS BICORNE MENE E A TERME A PROPOS D UN CAS AVEC REVUE DE LA LITTERATURE

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Grossesse Sur Uterus Bicorne Menee a Terme Apropos D'un Cas Avec Revue De La Litterature

Bicornuate Uterus and Pregnancy a Propos one case and Review of the Litterature

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D.Moussaoui ^θ & M. Dehayni ^ζ

Résumé- La fréquence des malformations utérines ayant un impact sur la reproduction est difficile à apprécier. Leur mise en évidence nécessite un bilan spécifique (hystérosalpingographie, hystérocopie, coelioscopie). La fertilité spontanée peut être altérée en fonction du type d'anomalie utérine. Toutes ces anomalies peuvent avoir des répercussions sur l'évolution de la conception à type de fausses couches précoces et tardives, de grossesse extra-utérine, de menace d'accouchement prématuré, d'accouchement prématuré, de pathologies vasculaires gravidiques et de retard de croissance intra-utérin. La fonction ovarienne n'est pas modifiée. L'utérus bicorne est la plus connue des malformations et représente environ la moitié des anomalies de l'utérus. La chirurgie, notamment endoscopique, permet un diagnostic précis, l'évaluation d'un pronostic et un traitement améliorant les chances de conception et l'évolution des grossesses. La survenue d'une telle grossesse constitue une situation à risque pouvant entraîner une mort maternelle, mais le diagnostic précoce et un bon suivi peut mener des grossesses à terme sur des utérus malformé. Le dépistage échographique devrait permettre la détection systématique de ce genre de cas afin de prendre préventivement les mesures qui s'imposent. Nous rapportons un cas d'un utérus bicorne unicervical mené une grossesse jusqu'à 38SA, diagnostiqué au cours de l'échographie de premier trimestre de la grossesse.

Mots-clés: malformation utérine; utérus bicorne, grossesse.

Abstract- Frequency of uterine malformations have an impact on reproduction is difficult to assess. Their detection requires a specific review (hysterosalpingogram, hysteroscopy, laparoscopy). Spontaneous fertility can be altered depending on the type of uterine anomaly. All these anomalies can affect the evolution of the design type of false early and late layers of ectopic pregnancy of preterm labor, premature delivery of vascular pathologies of pregnancy and growth retardation intrauterine. Ovarian function is not changed. The uterus bicornis is best known defects and represents about half of the anomalies of the uterus. Surgery, including endoscopic allows precise diagnosis, assessment of prognosis and treatment improves the chances of conception and evolution of pregnancies. The occurrence of such a pregnancy is a dangerous situation that can lead to maternal death, but early diagnosis and proper monitoring can carry pregnancies to term of malformed uterus. Ultrasound screening should enable the systematic identification of such cases to take preventive

measures are needed. We report a case of a uterus bicornisunicervical carried a pregnancy to 38SA diagnosed during ultrasound first trimester of pregnancy.

Keywords: bicornuate uterus; uterine malformation, pregnancy.

I. INTRODUCTION

Les malformations utérines sont relativement fréquentes puisqu'elles concernent 3 à 4% de la population féminine. [1][2] Les grossesses survenant dans un utérus malformé sont relativement rares. Beaucoup d'entre elles restent asymptomatiques et le diagnostic n'est posé que fortuitement lors d'un examen pratiqué dans un autre but. Ainsi il n'est pas exceptionnel de poser par exemple le diagnostic d'un utérus bicorne lors d'un premier contrôle de grossesse ou de découvrir lors d'un accouchement par voie basse. Heureusement, beaucoup d'entre elles sont asymptomatiques. Il est pourtant important d'évoquer ce diagnostic chez toutes patientes présentant une anamnèse de fausses couches à répétition, de fausses couches tardives ou d'accouchement prématuré, chez l'adolescente qui consulte pour une aménorrhée primaire, une dysménorrhée ou dyspareunie et chez les patientes suivies en médecine de la reproduction. [2]

II. CAS CLINIQUE

Madame T.N., 29 ans, primipare, sans antécédents (ATCD) pathologiques notables. Elle a été admise dans notre formation à 36SA en tout début du travail pour prise en charge du son accouchement. La grossesse est suivie dans notre formation depuis 10 semaines d'aménorrhée SA avec un bon suivi, c'est au cours de l'échographie du 1er trimestre qui a objectivée un utérus bicorne unicervical ; le suivi n'a pas objectivé d'anomalies jusqu'à 37SA ou une césarienne a été programmée. L'examen à l'admission avait retrouvé une hauteur utérine (HU) à 32 cm, pas de contractions utérines (CU), des bruits cardiaques fœtaux (BCF) réguliers à 140 battements/mn, une présentation céphalique et mobile, une poche des eaux (PDE) intacte et une tension artérielle (TA) à 130/90 mmHg sans œdèmes des membres inférieures. Les données biologiques étaient sans particularité. La biométrie fœtale était entre 10e et 25e percentile avec une

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estimation du poids foetal à 3100g Le liquide amniotique (LA) était en quantité normale. La césarienne donnant naissance à un nouveau-né, de sexe masculin, pesant 2900 g, normalement constitué, d'Apgar 10/10 à 1 minute, tonique réactif, présenté une détresse respiratoire transitoire améliorée sous oxygénothérapie. Les suites immédiates maternelles étaient simples. L'évolution maternelle ultérieure été sans particularité.

L'intervention a confirmé l'aspect d'utérus bicorne unicervical (fig1). Le diagnostic de ce type d'anomalie peut être fait de manière relativement simple en début de

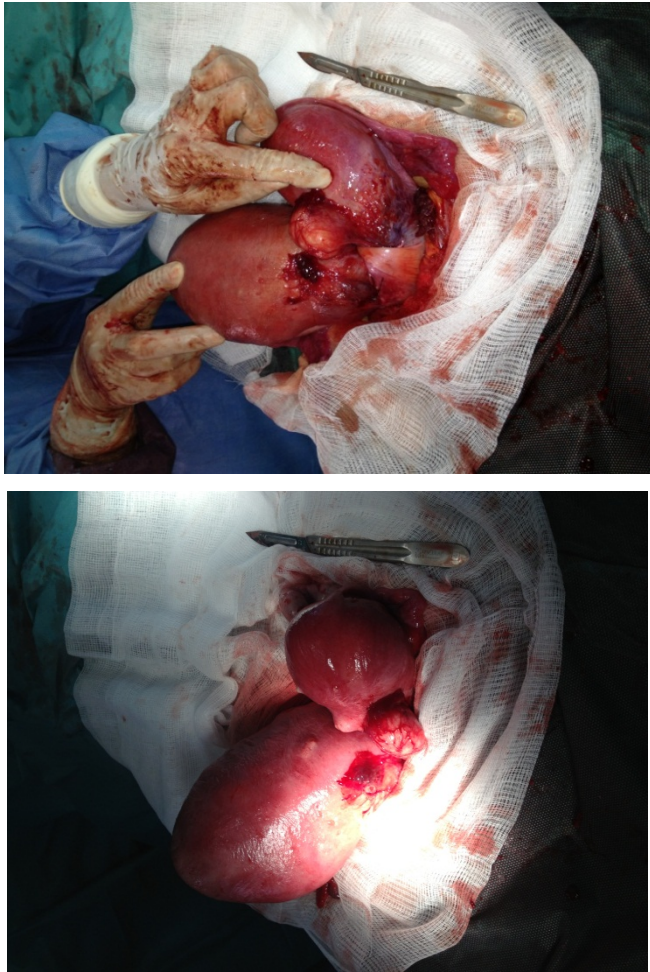


Figure 1 : Bicorne utérus pendant la césarienne. Cela montre l'utérus bicorne livré en dehors de la cavité abdominale au cours de l'opération

grossesse à un stade où l'on visualise encore l'utérus et son contenu assez aisément. Il devient plus difficile quand la grossesse est plus avancée, mais reste possible si l'on est attentif à la structure du myomètre autour des sacs gestationnels.

III. DISCUSSION

a) Organogenèse : [4]

Dès la 7e semaine du développement, les voies génitales féminines se différencient : en l'absence

d'hormone anti-müllérienne, les canaux de Wolff régressent et les canaux de Müller vont se développer. Ce développement comporte trois phases:

1. la migration des canaux de Müller vers le sinus urogénital (6e à 9e semaine) ;
2. l'accolement du tiers inférieur des canaux de Müller formant la cavité utérine et les deux tiers supérieurs du vagin (9e à 13e semaine) ;
3. la résorption de la cloison inter-müllérienne (13e à 17e semaine). La plupart des malformations utérines peuvent être expliquées par un défaut ou un arrêt du développement lors de ces trois phases:
 - L'absence de migration ou la migration caudale incomplète des canaux de Müller vers le sinus urogénital sera responsable d'atésies et/ou d'aplasies utérines complètes ou non.
 - Un défaut de fusion des canaux de Müller conduit à une duplication utérine (utérus didelphe, utérus bicorne).
 - Un défaut de résorption de la cloison inter-müllérienne conduit à un utérus cloisonné.

Autres points importants:

- Les deux tiers supérieurs du vagin ayant la même origine embryologique que l'utérus, les malformations utérines sont souvent associées à des malformations vaginales hautes.
- Un élément relativement constant est l'association d'anomalies de l'appareil génital et du système urinaire, l'embryogenèse de ces deux systèmes étant intimement liée.
- Le développement des ovaires n'étant pas lié à celui des canaux de Müller, la morphologie et la fonction ovarienne sont généralement normales lors de malformations utéro-vaginales.
- Les malformations utérines ne sont pas associées à une anomalie des chromosomes ou à des anomalies de la différenciation sexuelle.

b) Grossesse et uterus bicorne

L'incidence des anomalies utérines congénitales dans une population fertile est de 3,2 %, dont 90% sont des cloisons utérines et 5 % soit utérus bicorne ou utérus didelphes [5]. Une vaste étude cas-témoins par l'étude collaborative espagnol des malformations congénitales regardés chez 26945 enfants malformés et elle a évalué la fréquence des anomalies congénitales chez les descendants de mères ayant utérus bicorne. Cette étude montrant que le risque de malformations congénitales a été jugé quatre fois plus élevé chez les mères ayant utérus bicorne [6]. Une autre étude longitudinale rétrospective sur les anomalies utérines démontré des taux de naissances vivantes de 62,5% en cas d'utérus bicorne mais les fausses couches précoces et le travail prématuré étaient plus fréquents [7]. L'utérus bicorne complique la grossesse, mais ne l'empêche pas. C'est souvent la grossesse elle-même qui révèle la malformation, car elle peut

provoquer des avortements à répétition. Le diagnostic est alors confirmé par une échographie. Même si ce n'est pas un obstacle à la conception, cette anomalie peut gêner une bonne implantation dans la paroi utérine. Les risques de fausses couches augmentent environ de 30 %. Pour les autres, la malformation utérine sera source de grossesse à risque et de complications obstétricales [3]. Si les malformations utérines congénitales sont présentes chez 3-4% de la population féminine fertile et/ou infertile, leur fréquence s'élève à 5-10% chez les femmes consultant pour fausses couches à répétition et à 25% chez les femmes avec fausses couches tardives ou accouchement prématuré. [3] Le problème chez ces patientes n'est pas celui de concevoir, mais de mener à terme la grossesse. Plusieurs facteurs expliquent cela : les malformations utérines sont associées à une cavité utérine de taille réduite, une musculature moins efficace, une incapacité de se distendre, une dysfonction myométriale et cervicale, une vascularisation inadéquate et un endomètre mal développé. Ces anomalies contribuent à un taux de fausses couches à répétition, d'accouchements prématurés, de présentations dystociques, de retard de croissance intra-utérin (RCIU) et de césariennes plus élevé ; avec un risque accru de rupture utérine surtout si grossesse sur corne rudimentaire, si l'embryon s'accroche dans la plus petite chambre utérine, les risques de ne pas porter sa grossesse à terme sont malheureusement augmentés, puisque le fœtus n'aura pas assez de place pour se développer. [3]

c) *Accouchement et utérus bicorne*

Généralement, avant la naissance, le bébé se retourne et se positionne la tête en bas, ce qui lui permet d'utiliser la place la plus vaste de l'utérus pour son corps et ses jambes. Cependant, dans le cas d'un utérus bicorne, le bébé peut se sentir plus à l'aise la tête en haut, positionnant ainsi la partie la plus large de son corps vers la région pelvienne maternelle. C'est pourquoi le taux de présentation de bébé « en siège » est plus élevé dans ce cas. Cette malformation de l'utérus peut aussi entraîner des risques de décollement précoce du placenta, ce dernier étant parfois moins solidement implanté dans l'utérus par manque de place. La santé du bébé peut être alors compromise. Certains obstétriciens recommandent une césarienne à 37 SA (semaines d'aménorrhée), mais de nombreuses mères peuvent aussi bénéficier d'un accouchement naturel. [3] Avoir des enfants avec un utérus bicorne est donc possible. Cependant cela nécessite de la patience, de la persévérance et un sérieux suivi médical.

d) *Prise en charge et traitement des utérus bicornes*

i. *Avant la grossesse*

La prise en charge des malformations utérines avant la grossesse comprend le traitement chirurgical pour autant qu'il soit indiqué et possible. Pour les utérus

bicornes uni ou bicervicaux, la chirurgie réunificatrice des deux héli-utérus, décrite par Strassmann en 1952, n'a pas montré de réel bénéfice [8]. Elle ne doit être réservée qu'aux patientes dont le pronostic obstétrical est extrêmement défavorable et dont l'anamnèse révèle plusieurs fausses couches tardives. Les utérus cloisonnés sont les seules malformations utérines dont le traitement chirurgical est relativement simple. Il consiste en une résection de la cloison par hystérocopie. Ce traitement n'est indiqué que chez les patientes symptomatiques ayant eu des complications obstétricales dans leurs antécédents. [9],[10],[11] Compte tenu de la simplicité du geste et du faible taux de morbidité, certains auteurs recommandent le traitement de cette malformation dès son diagnostic dans l'intention de diminuer le taux de fausses couches tardives. Pour les utérus unicornes avec une corne rudimentaire controlatérale, le risque principal est de voir se développer une grossesse dans la corne rudimentaire, avec risque de rupture de l'héli-utérus borgne. De ce fait, une résection de la corne rudimentaire est recommandée lorsqu'un endomètre est présent. [12]

ii. *En cours de grossesse*

Lorsque le diagnostic de malformation utérine est posé en début de grossesse, le traitement ne sera que préventif (repos, maturation pulmonaire, surveillance échographique de la croissance fœtale et de la compétence cervicale) [13]. Le cerclage cervical ne devrait être proposé qu'en cas d'incompétence cervicale prouvée, ce que l'on observe dans 25-30% des cas de malformations utérines [14], [15], [16]. Le rôle du cerclage du col utérin n'est pas certain dans la prévention de l'accouchement prématuré, sauf quand il est documenté incompétence du col par échographie ou hystérosalpingographie et l'histoire des accouchements prématurés antérieurs. Sinon, unicorne ou de l'utérus bicorne est vu au cours de la césarienne avec les grossesses à terme ou à proximité du terme sans cerclage du col dans de rares cas. C'est une procédure efficace dans l'utérus bicorne pour la prévention des accouchements prématurés, mais il n'a aucun effet sur l'issue de la grossesse dans l'utéro-sarqué [17]. D'après ces différents travaux, on peut conclure que les malformations utérines entraînent essentiellement des complications obstétricales de type fausses couches spontanées et accouchement prématuré, en dehors du fond arqué qui n'aurait aucune incidence. Il n'y aurait pas de relation directe entre infertilité et malformation, bien que la résection d'une cloison utérine améliore la performance reproductive des patientes infertiles et un utérus bicorne peut mener une grossesse à terme.

IV. CONCLUSION

Les malformations utérines congénitales sont relativement fréquentes et souvent asymptomatiques. Leur incidence exacte reste difficile à évaluer. Elles

peuvent se manifester sous la forme de troubles gynécologiques ou avoir un impact sur la reproduction. Chaque clinicien doit rechercher une malformation utéro-vaginale en présence d'une aménorrhée primaire, de douleurs abdominales, de fausses couches à répétition et dans certaines issues obstétricales défavorables. La prise en charge psychologique peut être nécessaire pour certaines patientes. Il convient de rappeler que lors du diagnostic de malformation utérine, une imagerie des voies urinaires devrait être effectuée en raison des anomalies associées fréquentes. Un utérus bicorne ne conduit pas toujours à des complications mais il peut mener des grossesses à terme. Il est nécessaire de renforcer les capacités pour établir un diagnostic prénatal afin d'assurer une prise en charge adéquate. Ce genre de malformation est très rare mais il importe d'en faire le diagnostic échographique de façon à gérer la situation préventivement et à permettre l'extraction des fœtus dans de bonnes conditions avant toute complication.

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Intracerebral Changes Detected by CT Scan of Brain in Eclampsia

By Dr. S. Khandaker, Dr. M. Haldar & Dr. S. Munshi

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Method: This is prospective observational study in a tertiary hospital. CT scan of brain is performed within 48 hours of eclampsia after confinement of fetus and after stabilising the mother with standard MgSO₄ protocol. The CT scans of brain are performed with 5mm and 10mm section in the axial plain.

Results: CT scan of brain shows, 31.6% has cerebral edema, 23.7% have cerebral infract, 7.9% have cerebral haemorrhage, while 36.8% have no detectable findings. Parietal region of the brain is affected in 67% followed by parieto-occipital area (17%), occipital area (8%) and brain stem (8%). 68.4% mothers have headache, 18.4% have visual disturbances, 34.2% have altered sensorium with hyper-reflexia and 36.6% have coma.

Conclusion: CT scan of brain in eclampsia can provide useful intracerebral information and should be done in cases with severe neurologic manifestations, if possible for every eclamptic mother.

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I. INTRODUCTION

Eclampsia is defined as occurrence of convulsion, not caused by any co-incidental neurological disorder (e.g. epilepsy) in a woman whose condition also meets the criteria for preeclampsia¹ which is a complex multi-organ disorder characterised by pregnancy induced hypertension and proteinuria after 20 wks of pregnancy (exception—gestational trophoblastic disease or multiple pregnancy). The diagnostic criteria are being blood pressure $\geq 140/90$ mm Hg and proteinuria (≥ 300 mg/24 hours or $\geq 1+$ dipstick).¹ The incidence of eclampsia in developing country like India is 1 in 100 to 1 in 1700 deliveries. Cerebral complications are the major cause of deaths in eclampsia; still the neuropathophysiology of eclamptic seizure is mostly unknown. There are two distinct but related types of cerebral pathology.² The first is gross haemorrhage due to ruptured arteries caused by severe hypertension of any cause, not necessarily only by preeclampsia or eclampsia. The second type of post-mortem lesions are edema, hyperaemia, ischemic microinfarcts and petechial haemorrhages. The mechanism of the cerebral lesions in eclampsia is unclear. The neurologic manifestations of severe eclampsia are identical to

those of hypertensive encephalopathy,² which is clinically manifested as generalised tonic-clonic seizure and usually preceded by neurological symptoms like hyper-reflexia, altered sensorium, headache, visual changes and even coma.

There are two theories to describe pathogenesis of hypertensive encephalopathy³:-

1. Theory of vasospasm: Due to increased hypertension cerebral autoregulation causes intense cerebral vasospasm, followed by local anoxic damage to capillary endothelium and disruption of blood-brain barrier which leads to cerebral edema (cytotoxic edema)
2. Theory of hyperperfusion: Sudden fluctuation in blood pressure exerts pressure on blood vessel wall leads to extravasations of fluid and protein and pericapillary ring haemorrhage (vasogenic edema) with increased blood-brain permeability

The recent advances in radiologic imaging including the use of computed tomography (CT) scans and magnetic resonance imaging (MRI), have greatly enhanced our understanding about the correlation between neurologic manifestations and neuro-anatomic and pathological characteristics of eclampsia⁴. Harandou M et al⁶; showed that 73.68% cases of eclamptic mothers who are still symptomatic after 24 hours have cerebral edema and 10.5% have cerebral hemorrhage and 15.7% have normal CT scan study.

The aim of the study is to evaluate the different neurological changes in brain in eclampsia in relation to neurologic symptoms by CT scan. In this study, CT scan methodology has been adopted because it is less expensive, easily available and results are almost same but MRI reflects more and minute information.

II. METHODOLOGY

This is a prospective study of CT scan finding of brain in cases of eclampsia admitted in a tertiary hospital. The study population are chosen by random samplings who are patient of eclampsia admitted through emergency and also indoor patients who develop eclampsia after admission.

a) Inclusion Criteria

1. Patients with Eclampsia (at least one episode of seizure in women with more than 20 weeks gestation or less than 06 weeks postpartum with blood pressure more than 140 mm of Hg systolic

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and 90 mm of Hg diastolic with urine albumin of more than 0.3gm/L). both antepartum and postpartum

b) *Exclusion Criteria*

1. Women who are known case of Hypertension, Epilepsy.
2. Seizures due to metabolic disturbances, space occupying lesions or intracerebral infections.

Total 38 eclamptic mothers is chosen according to inclusion criteria. Basic information including age, parity and gestational age, previous medical or obstetric history is taken. Detailed history of convulsion like duration, time, number of convulsion and presence of premonitory symptoms are sought; followed by detailed neurological examination (specially level of consciousness, pupillary reaction and reflexes) including funduscopy is performed. Basic investigations like blood pressure, urine for proteinuria (by dipstick) are measured and complete hemogram, platelet count, serum uric acid, serum creatinine, liver enzymes are sent. Standard MgSO₄ protocol is given to all eclamptic mothers.

If the mother is not already delivered, assessment of cervix and delivery of the fetus is done accordingly either by induction of labour or Caesarean section. CT scan of brain is performed within 48 hours of eclampsia after confinement of fetus and after stabilising the mother. The CT scans of brain are performed with 5mm and 10mm section in the axial plain without

intravenous contrast. The CT scan findings are evaluated with clinical characteristics. Level of consciousness is classified according to Glasgow coma scale (<8 severe, 9-12 moderate and >13 minor)⁵. Statistical analysis is performed with aid of Statistical Package for the Social Sciences (SPSS 16, SPSS Inc., Chicago, IL, USA). P value <0.05 is considered for statistical significance.

III. RESULTS

Total 38 eclamptic mothers are included in this study. Median age of the mothers is 23 years with standard deviation (SD) of 3.8years. 47.4% eclamptic mothers are primigravida and 52.6% eclamptic mothers are multigravida. Among them 28.9% have postpartum eclampsia, 39.8% have intrapartum eclampsia and 31.6% have antepartum eclampsia. 39.47% mothers delivered by normal delivery and 60.53% mothers have undergone LSCS.

CT scan of brain shows, 31.6% have cerebral edema (diffuse white matter low density areas, patchy area of low density, loss of normal cortical sulci) 23.7% have cerebral infarct (hypo attenuating brain tissue), 7.9% have cerebral haemorrhage (intraventricular/parenchymal hemorrhage), while 36.8% have no detectable findings. Parietal region of the brain is affected in 67% followed by parieto-occipital area (17%), occipital area (8%) and brain stem (8%). (Figure 1)

	Cerebral edema	Cerebral haemorrhage	Cerebral infarct	Total
Basal ganglia and internal capsule	4.1%	0%	4.1%	8.2%
Cerebral cortex: occipital	8.3%	0%	0%	8.3%
Cerebral cortex: parietal	37.5%	8.3%	20.8%	66.6%
Cerebral cortex: both parieto-occipital	0%	4.1%	12.5%	16.6%

Among different neurologic symptoms 68.4% mothers have headache, 18.4% have visual disturbances, 34.2% have altered sensorium with hyper-reflexia and 36.6% have coma. Among different neurologic symptoms the CT scan findings are shown in figure 2. Eclamptic mother who presented with visual disturbances (7/38) mostly have brain lesions in parieto-

occipital and occipital region (6/7), which is statistically significant.(p<0.005) Similarly, mothers presented with coma(14/38) mostly have lesions in parietal cortex (10/14) also, significant.(p 0.002) But no association is found with area of lesions and other symptoms like headache and hyperreflexia.

Neurologic symptoms	CT Scan of brain			
	Normal CT findings	Cerebral edema	Cerebral infarction	Cerebral haemorrhage
Altered sensorium and hyper-reflexia	38.5%	46.2%	15.4%	0%
Headache	26.9%	30.8%	30.8%	11.5%
Visual disturbances	14.3%	28.6%	42.9%	14.3%
Coma	7.1%	35.7%	35.7%	21.4%

53.3% eclamptic mothers are preterm (< 37 weeks completed gestational age); among them 42.9%

have cerebral edema, 28.6% have cerebral infarction, 14.3% have cerebral haemorrhage and 14.3% have no

CT scan findings. 44.7% eclamptic mothers are term (>37 weeks completed gestational age); among them 17.6% have cerebral edema, 17.6% have cerebral infarction, but 67.4% have no CT scan findings ($p < 0.05$).

In this study there is no difference between blood pressure distributions between those who have CT scan findings than those who have not positive CT scan findings. (Figure 3)

Figure 3: BP distribution among eclamptic mothers	CT scan features (edema/hemorrhage/infarction)	No CT scan finding	P value
Systolic BP (mean±SD)	166.25±17.64mmHg	155.71±17.85mmHg	0.086
Diastolic BP (mean±SD)	113.33±14.09mmHg	107.14±9.94mmHg	0.156

Eclamptic mother whose number of episode of convulsion is less than 5; among them 61.9% have no finding in CT scan, 28.6% cerebral edema, 9.5% have cerebral infarction. On the other hand whose number of episode of convulsion is more than 5, among them 35.3% develop cerebral edema, 41.2% develop infarction and 17.6% develop cerebral haemorrhage ($P < 0.001$).

55.3% eclamptic mothers have Glasgow coma scale <8 during admission; among them 33.3% develop cerebral edema, 33.3% develop infarction, 14.3% develop cerebral haemorrhage and 19% have no CT scan findings. 44.7% eclamptic mother whose Glasgow coma scale is >8; among them 29.4% develop cerebral edema, 11.8% develop infarct and 58.8% have no CT scan finding ($p < 0.05$).

Of the eclamptic mothers who recovered within 24 hours to fully oriented state (N=13) 76.9% have no CT scan findings, only 15.4% develop cerebral edema and 7.7% develop infarction. Eclamptic mother who recovered over 48 hours (N=13); only 7.7% have no CT scan finding in CT scan, 46.2% develop edema, 30.8% develop infarction and 15.4% develop hemorrhage. ($p < 0.019$)

IV. DISCUSSION

In this study cerebral edema is most common lesion (31.6%) detected by CT scan, but most importantly 37.8% eclamptic mothers have no CT scan finding. These finding is corroborative with the findings of Harandou M et al⁶ and Akan H et al²² (Figure 4).

Figure 4: CT scan findings of brain in eclamptic different study	Normal finding	Edema	Infarction/Thrombosis	Haemorrhage
Harandou et al ⁶ (2006)	15.78%	73.68%	15.78%	10.53%
Akan H et al ²² (1993)	18.18%	50%	13.63%	9.09%
Milliez J (1990)	59%	34%		6.8%
Richards AM ¹⁶ (1988)		63.79%		9.3%
Naidu K ⁷ (1997)		58.5%		

Regarding area of distribution parietal and occipital area is the most frequent site of brain lesions in CT scan; supported by observation of Naidu et al⁷. They found parieto-occipital involvement in 97.4% of cases. Sometimes diffuse brain edema is associated with compression or dilatation of 3rd and 4th ventricles. There is two such cases in our study. One rare case of lacunar infarct and another rare subarachnoid haemorrhage is found in this study.

The CT scan findings observed in this study is similar to that observed in patients have severe hypertensive

encephalopathy⁹ or more similar to its variant Posterior reversible encephalopathy syndrome (PRES)

¹⁰. PRES is characterized by headache, altered mental status, visual disturbances, and seizures. Although hypertensive encephalopathy can arise in patients with conditions in which there is acute systemic hypertension alone, it most commonly occurs in patients also having pre-existing endothelial dysfunction or damage. The combination of acute hypertension and endothelial damage results in hydrostatic edema – a specific form of vasogenic edema characterised by the forced leakage of serum through capillary walls and into the brain interstitium- which, if severe enough, will be radiographically evident. ^{10,11} Vasogenic edema is most common finding in eclampsia which explain the reversible nature of most eclampsia. The patients which

show no significant finding in CT scan may have very mild vasogenic edema not enough for radiologic detection. The CT scan findings of cerebral infarction are originating from anoxia and cytotoxic edema. This may represent the spectrum of eclampsia ranges from an initially reversible phase of vasogenic edema formation to a later phase of ischemic damage and hemorrhage, which carries a worse prognosis with residual neurologic effect²¹. In fact, laboratory studies of hypertensive encephalopathy, suggest that as vasogenic edema progresses, local tissue pressure increases. This causes a decrease in regional perfusion pressure and a reduction of blood flow to ischemic levels. Subsequently, areas surrounding marked vasogenic edema may progress to infarction and cytotoxic edema.²¹

Brain perfusion is maintained by an autoregulatory system of small arteries and arterioles that has myogenic and neurogenic component¹¹. In PRES cases direct toxic effect on endothelium or vessel distension decrease the effect of myogenic mechanism. Then neurogenic mechanisms take over regulation of cerebral perfusion. The perivascular sympathetic nerves travel in the adventitial layer of cerebral blood vessels and are relatively protected from agents that cause endothelial damage. Since the vertebro-basilar system and posterior cerebral arteries are sparsely innervated by sympathetic nerves¹²; the occipital lobe and other posterior brain regions may be particularly susceptible to breakthrough of auto-regulation with elevated systemic pressure. Vasoconstriction induced by sympathetic innervations, moderately protects anterior circulation areas from over perfusion.

Headache is most common neurologic symptoms in this study (68.4%). Akutsu T et al(1992)¹³ and Chang WN et al(1996)¹⁴ also get similar results. Eclamptic mothers with visual symptoms and coma have more lesions in parieto-occipital region and parietal region respectively is corroborative with the findings of Chakravarty A, Chakrabarty SD(2002)¹⁵ and Chang WN et al(1996)¹⁴. Mothers who have developed coma with Glasgow coma scale <8 and with recurrent episode of convulsion (>5 times in number) develop more findings in CT scan. This finding is correlated to study of Richards et al¹⁶ showing severity of edema is related to duration of intermittent seizures. Also, mothers who become fully oriented within 24 hours have significantly less chance of having brain lesions in CT scan. As cerebral mass effect along with diffuse white matter hypo-densities is associated significantly more with coma (p<0.034); these mothers recovered later from their eclamptic episodes¹⁷. In this study preterm eclamptic mother are significantly having pronounced CT scan finding than term mother (p<0.05); as preterm mothers are more severely affected in respect to more prodromal symptoms, multiple seizures, major maternal complication¹⁸. In our study, there is no statistical

significant difference in blood pressure values between cases of positive CT scan findings and cases with normal CT scan findings. Brain edema detected in preeclampsia/eclampsia is thought to be secondary to endothelial injury, rather than hypertension. This finding is correlated with the findings of Schwartz et al.¹⁹

V. CONCLUSION

It is evident from this study that cerebral edema is most common cerebral lesions followed by infarction and hemorrhage and parieto-occipital regions of brain is the most common affected area. Although almost 38% eclamptic mothers do not have cerebral lesions, those who have lesions are significantly related to level of consciousness, number of convulsive episode and time taken to recover fully oriented state. Most common neurological finding is headache followed by altered sensorium and hyper-reflexia, visual disturbances and coma. CT scan of brain can provide useful intracerebral information to detect different brain lesions in eclampsia which may have different prognosis with residual effect and may need specific modification in management protocol to prevent long term neurologic sequelae and reduce maternal mortality and morbidity; although these parameters are not included in this study. Hira B and Moodley J (2004) have shown that CT scan does change management in 27% of eclamptic mothers which is statistically significant.²⁰

CT scan of brain in eclampsia can provide useful intracerebral information and should be done in cases with severe neurologic manifestations, if possible for every eclamptic mother.

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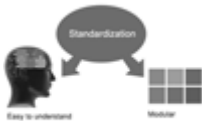


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- Align the primary line of each section
- Present your points in sound order
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- Use past tense to describe specific results
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The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript-- must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

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Approach:

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Approach:

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Approach:

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Approach

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Approach:

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<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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