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Microbiology and Pathology

Non Invasive Follicular Thyroid

Variation of Rifampicin Resistance

Highlights

Pathogenic Microbial Contaminants

Analysis of RBC Antibody Screening

Discovering Thoughts, Inventing Future

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Contents of the Issue

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Non Invasive Follicular Thyroid Neoplasm with Papillary Like Nuclear Features (NIFTP): A Case Report

By Dr. Shweta, Dr. Richa Goyal, Dr. Preeti Joseph John & Dr. Yogesh Gauba
Oncquest Lab Ltd

Abstract- World health organization (WHO) 2017 fourth edition has introduced entity Non Invasive follicular thyroid neoplasm with papillary like nuclear features (NIFTP), which reflects indolent course of this tumor. NIFTP has an established diagnostic criteria including papillary like nuclear features and entire tumor capsule submission to exclude invasion. NIFTP shows RAS type mutation expressed by other follicular lesions. This nomenclature change with strict and reproducible diagnostic criteria will help to better guide the treatment and reduce the burden of over treatment.

Keywords: non invasive follicular thyroid neoplasm with papillary like nuclear features (niftp), thyroid, invasion, capsule, world health organization (who), papillary thyroid carcinoma.

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Non Invasive Follicular Thyroid Neoplasm with Papillary like Nuclear Features (NIFTP): A Case Report

Dr. Shweta [α], Dr. Richa Goyal [σ], Dr. Preeti Joseph John [ρ] & Dr. Yogesh Gauba [ω]

Abstract- **World health organization (WHO) 2017 fourth edition has introduced entity Non Invasive follicular thyroid neoplasm with papillary like nuclear features (NIFTP), which reflects the indolent course of this tumor. The diagnostic criteria for NIFTP includes papillary like nuclear features and complete tumor capsule submission to exclude invasion. NIFTP shows RAS type mutation expressed by other follicular lesions. This strict nomenclature change and reproducible diagnostic criteria will help to guide the management in better way and to reduce the burden of overtreatment.**

Keywords: non invasive follicular thyroid neoplasm with papillary like nuclear features (NIFTP), thyroid, invasion, capsule, world health organization (WHO), papillary thyroid carcinoma.

I. Introduction

The fourth edition 2017 of the WHO book on the classification of the tumors of endocrine organs includes new entity 'Non Invasive follicular neoplasm with papillary like nuclear features' (NIFTP). [1] This was done additionally to characterize the clinical behavior of this lesion, thus further helping to predict prognosis and manage the patients appropriately. Hence overall helping to prevent overtreatment and decrease the cancer diagnosis burden. [2] The WHO has coded unspecified, borderline or uncertain behavior for NIFTP. Hence it is a neoplasm, but not cancer. NIFTP presents mostly similar to other thyroid neoplasms by detection of a nodule on routine examination or incidentally on imaging. Histopathology shows solid, well-circumscribed or encapsulated nodule. Diagnosis is made by strict inclusion and exclusion criteria following submission of the entire capsule for histology and carefully examining the nuclear and architectural features, (Table-1).[3]

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II. Case Report

Forty years old female presented with the complaint of neck swelling from the past few months. Her ultrasonography neck was suggestive of multinodular goiter. Her thyroid function tests were normal. Fine needle aspiration cytology was suspicious of papillary carcinoma. She underwent total thyroidectomy at Mohandai Oswal cancer hospital. The specimen was recieved for histopathological examination at Oncquest laboratories, situated in Mohandai Oswal cancer hospital. Specimen measured 4.3x4x2cm. The left lobe measured 4x2x2cm. On cut section, it showed a well-circumscribed nodule measuring 1.7x1.7x1.3cm, which was paler than the surrounding thyroid parenchyma. Grossly areas of hemorrhage or necrosis were absent. The right lobe and isthmus showed unremarkable morphology. Sections of the nodule with capsule were embedded. Sections from the left lobe showed encapsulated neoplasm containing medium-sized follicles lined by cuboidal cells displaying nuclear clearing, overlapping and grooving in few cells. An occasional intranuclear inclusion was noted. However, psammoma bodies, tumor necrosis, and mitosis were absent. Papillary architecture (<1%) was noted. Re-grossing was done. Entire nodule and capsule were submitted. Sections showed no capsular or vascular invasion. Hence the final diagnosis of Non Invasive follicular thyroid neoplasm with papillary like nuclear features (NIFTP) was given.

III. Discussion

WHO 2017 fourth edition stated NIFTP as a neoplasm of unspecified, borderline or uncertain behavior. Also, the word cancer was therefore omitted. [1] This new terminology reflects key histopathological features of this lesion that is lack of invasion, follicular growth pattern and nuclear features of papillary thyroid carcinoma. These tumors do not show molecular alterations associated with classical papillary thyroid carcinoma, such as BRAF V600E mutations. However, these demonstrate RAS and other mutations associated with follicular pattern thyroid tumors. [4] The treatment for NIFTP is simple lobectomy, near total or total thyroidectomy. No further surgery is needed. No postoperative radioactive treatment is given.

The major advantage of NIFTP for cytology is the reduction of SM category (Suspicious for malignancy Bethesda category V) diagnosis. In follicular patterned tumors it is very much dependent on good quality smears and the cytopathologist expertise. The main disadvantage is the false negative diagnosis in the SFN/FN (Follicular Neoplasm or Suspicious for a Follicular Neoplasm Bethesda category IV) leading to the need of a second surgery for total thyroidectomy in cases of the infiltrative follicular variant of papillary thyroid carcinoma (I-FVPTC).[5]

IV. Conclusion

With this approach in mind, the ability to differentiate NIFTP from classical papillary thyroid carcinoma will facilitate the conservative surgical management of the patients without radiotherapy or prophylactic central lymph node staging and with more studies adding to the evidence of good prognosis of these tumors. [3,6] Therefore this nomenclature change will reduce mental burden, overtreatment, financial burden, and other cancer diagnosis related consequences.

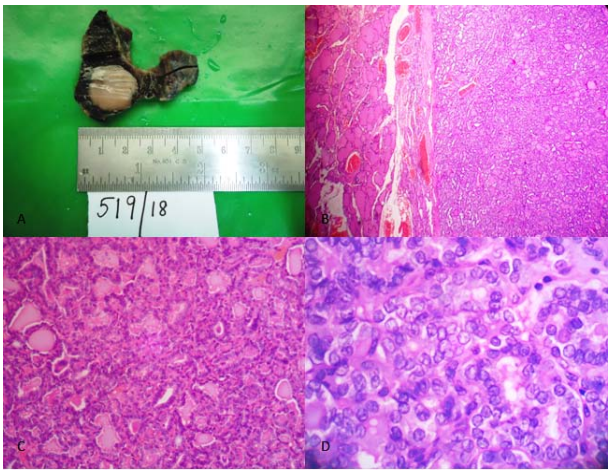
Table 1: Diagnostic Criteria for NIFTP [3]

1. Encapsulation or clear demarcation *[a].
2. Follicular growth pattern *[b] with : • <1% Papillae. • No psammoma bodies. • <30% Solid/trabecular/insular growth pattern.
3. Nuclear score 2-3.
4. No vascular or capsular invasion *[c].
5. No tumor necrosis.
6. No high mitotic activity *[d].
*a - Thick, thin, or partial capsule or well circumscribed with a clear demarcation from adjacent thyroid tissue.
*b - Including microfollicular, normofollicular, or macrofollicular architecture with abundant colloid.
*c - Requires adequate microscopic examination of the tumor capsule interface.
*d - High mitotic activity defined as at least three mitoses per 10 high-power fields (X400).

Legends:
Table 1: Diagnostic Criteria for NIFTP [3].

Photograph 1:

a) Gross photograph of left lobe showing a well-circumscribed nodule paler than the surrounding thyroid parenchyma.
b) Well encapsulated lesion with adjacent normal thyroid parenchyma. (X40).
c) Lesion arranged in follicles (X100).
d) Medium sized follicles lined by cuboidal cells displaying nuclear clearing and overlapping (X400).



Conflicts of Interest

The report has not been presented or submitted elsewhere fully or in part.

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None

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NA.

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Analysis of RBC Antibody Screening in a Hospital Population Over a Two Years Period

By Dr. Jagriti Yadav, Dr. Richa Jindal, Dr. Hema Goyal, Dr. Kuldeep Kaur & Dr. Molly Joseph
St. Stephen's Hospital

Abstract- RBC antibody screening plays an essential role in the pre-transfusion testing of the blood or blood products before blood transfusion in the recipients as well as in antenatal screening to prevent Rh-incompatibility. The antibody screening tests performed in a clinical laboratory / blood bank are designed to detect the presence of these unexpected antibodies especially all antibodies in the serum. Methods routinely used for detection of these antibodies are the Coomb's test (antihuman globulin test), both direct and indirect types.

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Analysis of RBC Antibody Screening in a Hospital Population Over a Two Years Period

Dr. Jagriti Yadav [α], Dr. Richa Jindal [σ], Dr. Hema Goyal [ρ], Dr. Kuldeep Kaur [ω] & Dr. Molly Joseph [¥]

Abstract- **RBC antibody screening plays an essential role in the pre-transfusion testing of the blood or blood products before blood transfusion in the recipients as well as in antenatal screening to prevent Rh-incompatibility. The antibody screening tests performed in a clinical laboratory/blood bank are designed to detect the presence of these unexpected antibodies especially all antibodies in the serum. Methods routinely used for detection of these antibodies are the Coomb's test (antihuman globulin test), both direct and indirect types.**

I. Material & Methods

A total of 378 patients and 2050 donors were included in this study period of two years (July 2016 to June 2018) in the Department of Pathology, St. Stephens Hospital, New Delhi, India. All the hospital population (patients as well as donors) blood samples were included in the study. The antibody screening tests performed were Indirect Coomb's tests, Direct Coomb's tests and Auto control. The method of screening used was gel card technology.

II. Statistical Analysis

Qualitative variables are expressed as frequencies / percentages and compared between groups using Chi-square / Fisher's Exact Test. Quantitative variables are written regarding mean ± sd and compared using Unpaired t-test / Mann-Whitney Test. A p-value < 0.05 is considered statistically significant. The data is tabulated in MS Excel and analysis performed using Statistical Package for Social Sciences (SPSS) version 16.0 software.

a) Study Design

Cross-sectional study

b) Sample Size Determination

The formula used for sample size estimation was

$$\frac{n=Z\alpha^2P(1-P)}{d^2}$$

III. Result and Discussion

Our study included 378 patients and 2050 donors. The age of patients ranged from new born to 80 years with a mean age of 28.64 years. The maximum number of cases were in the age group of 21-30 years (58.20 %), followed by 31-40 years (19.84 %) and two cases were in the age group of 71-80 years (0.53 %). Female predominance was seen with a male to female ratio of 1:5.6. The most common causative factors in our study were the previous history of transfusion, females presented with pregnancy either primigravida or multigravida and Rh-negative blood group. Blood group B was the most frequent blood group followed by blood group O.

Table 1: Demographic Profile of the Study Population

Total Patients n = 378		
Gender Distribution		
Gender	**n**	**%**
Male	57	15.08%
Female	321	84.92%
Total	378	100%
Age Group (Years)		
Age (Years)	**n**	**%**
≤ 10	29	7.67%
11 – 20	16	4.23%
21 – 30	220	58.20%
31 – 40	75	19.84%
41 – 50	14	3.70%
51 – 60	13	3.44%
61 – 70	9	2.38%
71 – 80	2	0.53%
Total	378	100%
Mean ± sd	28.64	±12.13
ABO Blood Group		
Blood Group	**n**	**%**
A	88	23.28%
B	138	36.51%
AB	42	11.11%
O	110	29.10%
Total	378	100%
Rh D Distribution		
Rh D Positive	352	93.12%
Rh D Negative	26	6.88%

In our study ICT was positive in patients with mean age of 30.24 years, whereas DCT was positive in patients with mean age of 37.04 years and AC was positive with a mean age of 30.59 years.

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In our study, DCT was positive in 16 patients, and ICT was positive in 13 patients. Only two patients (0.53 %) had AC positivity. Out of 13 patients in which antibodies were detected by ICT, 10 (76.92 %) were females, and 3 (23.08 %) were males. Out of 57 male patients DCT was positive in 12 (21.05 %) which was 75 % of the total DCT positive rate. Whereas out of 321 female patients DCT was positive in only 4 (1.25 %) females which were 25 % of DCT positive rate.

In our study out of 2050 donors most common age group among donors was 21-30 years with 1126 (54.98 %) donors. Least common age group was 51-60 years with 25 (1.22 %) donors. Out of 2050 donors, 2019 (98.49 %) of donors were males. Only ten donors showed ICT positive rate which was 0.49 % of total antibody screening. No DCT positive cases were found.

Table 2: ICT Rate Analysis with Other Studies

Author	Year	Total Patients	All Immunised Patients (ICT Positive Cases)	The Rate of Alloimmunization (%)
Sirchia et al.[1]	1985	1432	74	5.2
Chow et al.[2]	1994	436	26	6
Choudhary et al.[3]	1999	81	8	9.8
Ansari et al.[4]	2007	80	3	3.75
Roopam et al.[5]	2009	96	5	5.21
Pahuja et al.[6]	2010	211	8	3.79
Nikam et al.[7]	2011	74	1	0.74
Usman et al.[8]	2011	800	30	3.75
Sood et al.[9]	2013	306	13	4.24
Makroo RN et al.[10]	2014	49,077	403	0.82
Present study	2018	378	13	3.44

The present study has an alloimmunization rate of 3.44% which is comparable to all the other studies mentioned above. A study by Nikam et al.[7] had least alloimmunization rate of 0.74 %. Choudhary et al. had the highest alloimmunization rate of 9.8%.[3] The percentage of alloimmunization in all the above-mentioned studies fall somewhere between <1% to 10%. According to published data rates of alloimmunization in random patients vary from 0 to 3 percent.[11] Pandey H et al. reported in his study that observational studies in random patients, who most often receive an incidental transfusion, and pregnant women estimated the prevalence between <1-3%.[12] This incidence increases in multi-transfused patients and transfusion-dependent patients. The reported prevalence of alloimmunization in multi-transfused patients in India is comparatively low varying from approximately 3% to 10%.[3,9,13]

Table 3: DCT Rate Analysis with Other Studies

Author	Year	Total Patients	All Immunised Patients (DCT Positive Cases)	The Rate of Alloimmunization (%)
Nakamura Y et al.[14]	1984	421	14	3.3
Pahuja S et al.[6]	2010	211	-	0.47
Valsami S et al.[15]	2015	2695	70	2.59
Present study	2018	378	15	4.23

DCT is the cornerstone of the diagnosis of hemolytic disease of the newborn (HDN). In our study, out of 378 patients, DCT was positive in 16 patients. The positivity rate of DCT in our study was 4.23%. Pahuja S et al. drawn similar results by DCT and had a 0.47% rate of immunization.[6] The Study by Nakamura Y et al. in 1984 had 421 samples of cord blood out of which 14(3.3%) positive results were obtained by direct antiglobulin test.[14] Study by Valsami S et al. published in 2015 had a result of the direct antiglobulin test positive rate of 2.59%.[15]

a) Analysis of Autocontrol in Patients

Out of 378 cases, two patients showed auto control positivity.

Out of 378 patients, AC was positive only in two patients, and those were females (0.53%). Among those two patients, one was Rh-positive and the another one was Rh-negative. History of previous transfusion (1.7%) is the most common cause of auto antibodies followed by pregnancy (0.43%). Similarly, in our study, one patient had history of transfusion and other was a pregnant female had auto control positive rate. It was

observed in our study that antibodies are more commonly found in the age group between 20-40 years. There is a paucity of literature on the detection of antibodies by auto control.

Table 4: Comparison of Donors with Other Similar Studies

Study	Year	Total Doners	All Immunised Doners (ICT Positive)	The Rate of Alloimmunization (%)
Pahuja S et al.[16]	2013	7756	4	0.05
Garg N et al.[18]	2014	47450	46	0.09
Makroo RN et al.[17]	2018	82153	227	0.27
Present study	2018	2050	10	0.49

In our study, only ten donors had antibodies in their blood (0.49%). Makroo RN et al. drawn similar results in his study in which out of 82153 donors 227(0.27%) had antibodies in their blood.[17] The study by Pahuja S et al. had a total of 7756 donors out of which 4(0.05%) donors had antibodies in their blood.[16]Garg N et al. had a similar result of 0.09% antibodies in 47450 donors.[18] The blood with antibodies were discarded and not transfused to patients.

IV. Conclusion

Clinically significant antibodies were frequently detected in our patients and donors population. Alloimmunization in Rh D positive women was low as compared to Rh D negative women. The previous history of transfusion was an important cause for the development of antibodies. Males were more than females in donor population which showed that males are more active in donating the blood.

We recommended that

- Antibody screening must be done both in patients and donors to find the irregular antibodies.
- Antibody screening should be done in pregnant females to prevent Rh incompatibility or HDFN.
- Antibody screening should be done in donors to detect the presence of alloantibodies and is an important to provide compatible blood products and to avoid transfusion reactions.
- Multi-transfused patients have a high probability of developing alloantibodies, so extended screening is recommended in the patients to prevent hemolytic transfusion reactions.

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Dora Imefon Udoh

Pathogenic Microbial Contaminants from Roasted Pork Sold in Uyo Metropolis, Nigeria and Public Health Implications

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Abstract- Isolation of pathogenic microbial contaminants from roasted pork sold in Uyo metropolis, Nigeria was conducted using standard microbiological techniques. Pathogenic microorganisms isolated were Escherichia coli, Staphylococcus aureus, Salmonella spp, Enterobacter spp, Vibrio spp, Penicillium spp and Aspergillus spp. Total heterotrophic counts (THBC) for freshly prepared and exposed roasted pork (FPERP) samples ranged from 2.0x104 CFU/g - 4.2x104CFU/g while for dried and exposed roasted pork (DERP) samples ranged from 5.3x104(CFU/g) to too numerous to count (TNTC). The total enterobacteriaceae count (TEC) and total coliform counts (TCC) values were higher in DERP. Total Vibrio count (TVC) and total mycological count (TMC) were recorded only in DERP. The high microbial counts and diversity of these contaminants from these pork samples is an indication of its low microbiological quality. Thus, proper hygienic condition is recommended before and after preparation of the pork to prevent it from being a potential source of infections to the public.

Keywords: *roasted pork, pathogenic contaminants, infections.*

GJMR-C Classification: *NLMC Code: QW 25.5.M6*

Pathogenic Microbial Contaminants from Roasted Pork Sold in Uyo Metropolis, Nigeria and Public Health Implications

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Abstract- Isolation of pathogenic microbial contaminants from roasted pork sold in Uyo metropolis, Nigeria was conducted using standard microbiological techniques. Pathogenic microorganisms isolated were *Escherichia coli, Staphylococcus aureus, Salmonella spp, Enterobacter spp, Vibrio spp, Penicillium spp*, and *Aspergillus* spp. Total heterotrophic counts (THBC) for freshly prepared and exposed roasted pork (FPTP) samples ranged from $2.0x10^4$ CFU/g – $4.2x10^4$CFU/g while for dried and exposed roasted pork (DERP) samples ranged from $5.3x10^4$(CFU/g) to too numerous to count (TNTC). The total Enterobacteriaceae count (TEC) and total coliform counts (TCC) values were higher in DERP. Total *Vibrio* count (TVC) and total mycological count (TMC) were recorded only in DERP. The high microbial loads and diversity of these contaminants from these pork samples is an indication of its low microbiological quality. Thus, the proper hygienic condition is recommended before and after preparation of the pork to prevent it from being a potential source of infections to the public.

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I. Introduction

Pork is known as "pig meat" serves as food and is an important source of protein, vitamin and also fats for most people in many parts of the world (Yannick *et al.,* 2013). Pork is one of the most perishable of all food since it contains sufficient nutrient needed to support the growth of microorganisms (Magnus, 1981). The proportion of fat in pork usually ranges from 10 – 16%, but can be much higher, depending on the level of trimming and various other factors. According to Murphy (2011), some health benefits derive from pork includes muscle mass maintenance and adequate intake of pork helps in the high - quality nutrient that may help preserve muscle mass and enhanced exercise performance. Vitamins like thiamin, selenium, vitamin B, niacin, phosphorus are found in pork as well as some other compounds like creatine, taurine, and cholesterol (Murphy, 2011). Many people in Nigeria especially in the South-Eastern part of the country like to consume pig meat that is why pig keeping and consumption are rapidly increasing, and pork joints are located on some busy streets and roads. Pork joints are a mix of pork butchering and a snack bar where ready- to - eat or take away food are sold. Apart from their popularity among Nigerian, the joints are centers that attract flies and other pests. Flies are carriers of parasites and bacteria and are well known for cross - contamination of infections in farms, hospitals, and public places. In the study by Heilmann *et al*., (2015a) in Uganda, they asserted that the feeding habit and breeding of the flies in a filthy environment make flies vectors for various infectious diseases, and a specific reference was made to synanthropic flies which live close to humans, use foodstuff, feces, and other organic materials as protein source. Houseflies have siphoning mouthparts which allowed them to suck up food and whenever they do this, they vomit a mixture of enzymes and previously absorbed food particles with their potential contaminants to liquefy their feed for easy sucking. Thus food contaminants can occur through contaminated feces and mechanical contamination through the flies' body parts as well as pathogenic microbes harbored by flies in their crops. Roesel *et al..,* (2013) and Heilmann *et al*., (2015b) reported that flies, together with other pests such as rats, cockroaches and birds in the pork' joints are the potential source of contamination of the products and responsible for food - borne infection. According to Okonko *et al*., (2013), food-borne microbiologic hazards may be responsible for frequent cases of illness, and thus pose a food safety challenge. Food - borne illnesses are infections are caused by food that contain harmful or pathogenic bacteria, parasites, viruses or chemicals which results in the manifestation of many clinical signs such as vomiting, abnormal cramps and irritations of the gastrointestinal tracts (Scallan *et al.,* 2011). Food - borne diseases encompass a wide spectrum of illness and are growing public health problem worldwide. They arise as a result of ingestion of food stuffs contaminated with microorganisms or chemicals contamination of food production which the contaminants may come from environment and may include polluted water, soil or air (WHO, 2015). Moreover, according to Rao *et al*., (2009) some meat products that have the water activity approximately 0.99 which is suitable for microbial growth. The serious aspect of public concern is that

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which linked to numerous food scandals associated with animals such as those surrounding bovine spongiform encephalopathy and food and mouth disease epidemic (Okonko *et al*., (2013). Given the danger as well as the complications arising from food-borne infections, this research study focused on the isolation of pathogenic microbial contaminants from roasted pork sold in Uyo metropolis, Nigeria, with views to highlight the public health risk and medical implications of consuming contaminated pork.

II. Materials and Methods

a) Collection of Samples

The samples used for this research work were collected from four (4) different selling points in some of the major roads in Uyo metropolis, Nigeria. These selling points are located on the busiest roads where many customers patronize them. These samples points were Ikpa Road, Ikot Ekpene Road, Abak Road and Nwaniba - Use offot Road respectively all in Uyo metropolis, Akwa Ibom State, Nigeria. At each selling point, two (2) types of pork are sold; freshly prepared and exposed roasted pork (FPTP) and dried and exposed roasted pork (DERP). The FPTP is the meat produced and kept within a day while the DERP are that leftover of the freshly prepared that are subjected for heat treatment until they become dry**.** The two samples were kept opened and exposed without any covering materials even in the busiest environments for consumers to see and buy. The samples were collected aseptically, wrapped in a sterile aluminum foil and put in sterile containers. The samples were immediately transported to the Microbiology Laboratory, Department of Microbiology, University of Uyo, Akwa Ibom State, Nigeria for analysis using the standard technique.

b) Proximate Analysis

The sample containers were opened aseptically, and samples were cut using sterile forceps and knife into sterile containers. The proximate analysis was carried out to determine on the pork samples to determine the moisture content, ash content, crude lipid, crude fibre, protein and carbohydrate. The methods of AOAC (2000) were adopted in which the moisture content was determined as the loss in weight that results from drying a known weight of the pork sample at 100^{0}C. The ash content was determined by the ignition of a known weight of the pork sample at 550^{0}C until all carbon has been successfully removed. The crude lipid was derived by hydrolytic methods and the resultant residue was subjected to successive treatments with boiling acid and alkali respectively and at defined concentration; the organic residue was the crude fiber. The crude protein content was determined by the Kjeldahl method and was calculated from the nitrogen content of the pork sample obtained from stepwise digestion of the food substance using chemical reagents (sulphuric acid, sodium hydroxide). Ammonia was the end product obtained and it was measured using standard colorimetric method. The carbohydrate content was determined as nitrogen - free extract (NFE). The percentage carbohydrate was calculated as the difference between 100 and the total of all the proximate composition of each sample.

c) Microbiological Analysis

i. *Processing and Culturing of Samples*

The pork samples collected for this study were processed aseptically in the Laboratory. Serial dilution method for pour plate technique described by Fawole and Oso, (2001) was adopted. Each roasted pork sample was ground using a blender (Lab Blender 400 series, UK). Ten (10) grams of each sample was weighed out, and homogenized into 90ml of sterile distilled deionized water and vigorously shaken to dislodge adhered bacteria. Tenfold dilution of the homogenates was made using sterile pipettes and one (1) ml from the aliquot was transferred serially to other test tubes containing 9ml of distilled water up to 10^{-6}. One (1) ml of the diluents of 10^{-4} was aseptically dispensed into sterile Petri dishes containing 15ml of the already prepared molten agar. The media used were Nutrient Agar (Oxoid, USA), MacConkey Agar (Oxoid, USA), Eosin Methylene Blue (Oxoid, USA), Cysteine Lactose Electrolyte Deficient agar (Difco Laboratories, Detroit, Mich), Mannitol salt agar ((Difco Laboratories, Detroit, Mich), Thiosulphate citrate bile-salt agar (Oxoid, USA), and Sabourad Dextrose Agar (Difco Laboratories, Detroit, Mich) plates. A culture of each sample was done in triplicates. All plates were incubated at 37^{o}C for 24 hours in an incubator. Sabourad Dextrose Agar (SDA) plates were kept for 1week at room temperature for isolation of fungi. The plates were observed and the colonies were counted using colony counter to obtain the total heterotrophic bacteria counts (THBC), total Enterobacteriaceae Count (TEC), total coliform count (TCC), total *Vibrio* count (TVC) and total mycological count (TMC). The average numbers of colonies were taken since the culture was in triplicate. The number of colonies counted was multiplied by the reciprocal of the dilution factor to determine the microbial load in colony forming unit per gram (CFU/g). The colonies were sub-cultured to obtain pure colonies. Pure isolates of bacterial colonies were Gram differentiated and biochemically characterized and identified using the standard taxonomic schemes of Holt *et al*., (1994) and Cheesbrough, (2003) The isolates were maintained in Nutrient agar slants in McCartney bottles and preserved in a refrigerator at 4^{o}C and for further analysis.

III. Results

a) Proximate Analysis of Roasted Pork

Proximate analysis result showed that pork sample had values of moisture content (52.10%), Ash

content (3.42%), Crude lipid (6.603%), Crude fiber (1.226%), Protein (32.60%,) Carbohydrate (4.051) and Caloric value (336.016 Kcal) Table 1.

Table 1: Proximate Analysis of Roasted Pork

Parameters	Values (%)
Moisture Content	52.10
Ash Content	3.42
Crude Lipid	6.603
Crude Fiber	1.226
Protein	32.60
Carbohydrate	4.051
Caloric Value	336.016 Kcal

A total of 12 isolates were obtained from the freshly prepared and exposed roasted pork (FPTP) with percentage of occurrence (33.3%) of *Staphylococcus aureus* as the predominant pathogenic bacteria species, *Escherichia coli* and *Salmonella* spp had 25% respectively and *Enterobacter* spp had 16.7%. Diverse number of isolates were obtained from dried and exposed roasted pork (DERP) with a total number of 15 isolates with *Staphylococcus aureus* being frequently isolated bacterial species with percentage of occurrence of 26.7%, *Escherichia coli had* 13.3%, *Vibrio* spp, *Penicillium* spp and *Aspergillus* spp were also obtained from DERP had 6.67%, 13.3% and 20.0% respectively (Table 2).

Table 2: Percentages of Occurrence (%) of each Isolates from Roasted Pork Studied

Pathogenic Isolate from Pork Samples Studied	Number and Percentages of Occurrence (%) of each Isolate from Freshly Prepared and Exposed Roasted Pork (FPTP)	Number and Percentages of Occurrence (%) of each Isolate from Dried and Exposed Roasted Pork (DERP)
E Coli	3 (25.0)	2 (13.3)
Salmomella Spp	3 (25.0)	1 (6.67)
S Aureus	4 (33.3)	4 (26.7)
Vibrio Spp,	-	1 (6.67)
Enterobacter Spp	2 (16.7)	2 (13.3)
Penicilium Spp	-	2 (13.3)
Aspergillus Spp	-	3 (20.0)
Total	12 (100)	15 (100)

Microbial counts for freshly prepared and exposed roasted pork (FPTP) samples screened showed the total heterotrophic counts (THBC) ranged from $2.0x10^4$ CFU/g – 4.2x104CFU/g. The highest THBC recorded from samples obtained from Abak road, Uyo. Total Enterobacteriaceae count (TEC) ranged from 2.1 $x10^4$ CFU/g - $4.4x10^4$CFU/g and the highest TEC obtained from Ikpa road. Total coliform counts (TCC) ranged from $1.6x10^4$CFU/g to $2.3x10^4$CFU/g. There was no total *Vibrio* count (TVC) and no total mycological count (TMC) from these samples (Table 3).

Table 3: Microbial Counts for Freshly Prepared and Exposed Roasted Pork (FPTP)

Samples	THBC (CFU/g)	TEC (CFU/g)	TCC (CFU/g)	TVC (CFU/g)	TMC (CFU/g)
Abak Road	4.0x104	3.0x104	1.3x104	-	-
Ikot Ekpene Road	3.0x104	2.1x104	1.6x104	-	-
Ikpa Road	2.0x104	4.4x104	1.7x104	-	-
Nwaniba -Use Offot	2.4x104	2.3x104	1.6x104	-	-

Keys: THBC = Total Heterotrophic Counts, TEC = Total Enterobacteriaceae Count, TCC= Total Coliform Counts (TCC), TVC = Total Vibrio counts, TMC = Total mycological count, - = No microbial colony

Microbial counts results carried out on dried and exposed roasted pork (DERP) showed that THBC for samples from Abak road was 6.4 $x10^4$ CFU/g, samples from Ikot Ekpene road was $5.3x10^4$ (CFU/g). Samples from Ikpa road and Use offot road respectively had colonies on the plates that were too numerous to count (TNTC). The TEC ranged from$1.1x10^4$ CFU/g - $9.2x10^4$ CFU/g with the highest TEC of microbial loads recorded from samples obtained from Nwaniba-Use offot road, Uyo. The TCC ranged from $3.9x10^4$ (CFU/g) - $9.7x10^4$ (CFU/g), with the highest TCC loads from Abak road. Moreover, samples from Ikot Ekpene road yielded a TVC of $3.0x10^4$ (CFU/g) while there was no *Vibrio* count in others. The TMC was also recorded from dried and exposed roasted pork from Abak road, Ikot Ekpene road, and Nwaniba-Use offot road respectively, with the range of $1.3x10^4$ (CFU/g) - $2.4x10^4$ (CFU/g). (Table 4).

Table 4: Microbial Counts in Dried and Exposed Roasted Pork (DERP)

Samples Locations	THBC (CFU/g)	TEC (CFU/g)	TCC (CFU/g)	TVC (CFU/g)	TMC (CFU/g)
Abak Road	$6.4x10^4$	$5.9x10^4$	$9.7x10^4$	-	$1.3x10^4$
Ikot Ekpene Road	$5.3x10^4$	$1.1x10^4$	$5.5x10^4$	3.0x103	$2.3x10^4$
Ikpa Road	TNTC	$1.6x10^4$	$6.4x10^4$	-	-
Nwaniba-Use Offot	TNTC	$9.2x10^4$	$3.9x10^4$	-	$1.3x10^4$

Keys: THBC = Total Heterotrophic Bacteria Count, TEC=Total Enterobacteriaceae Count, TCC = Total Coliform Count, TVC = Total Vibiro Count, TMC =Total Mycological Count, - = No microbial colony

IV. Discussion

Pork contains nutrients such as protein, lipid, fiber, carbohydrate, as well as moisture. These constituents make the meat product susceptible to microbial growth. According to Jay, (2000) most organisms utilize protein, a carbohydrate in the presence of moisture to multiply and thrive very well. All pork samples analyzed contained pathogenic microbial contaminants and were *Eschrichia coli, Salmonella* spp*, S aureus, Vibrio* spp, *Enterobacter* spp*, Penicillium* spp, and *Aspergillus* spp. *Staphylococcus aureus* was found with the highest percentage of frequency of occurrence. Yannick *et al*., (2013) in their work also confirmed the presence of bacterial pathogens in pork with *Staphylococcus aureus* as the predominant organisms found with the highest percentage of frequency of occurrence. Tinega *et al*., (2016) reported the presence of *Salmonella* in the pork screened in their work. Whyte *et al.,* (2004) in their work stated that .the wide spread distribution of the meat product makes the consequence of contamination with food poisoning microorganisms more serious. The isolation of these organisms from roasted pork is public health importance because of they are pathogenic organisms and is worrisome on the fact that in the study area, many people like to consume this food product.

Salmonella species are important food - borne pathogens.. They are known to cause typhoid and non-typhoid illnesses (Ikumapayi *et al.,* 2009), and tends to be more severe with people in immunocompromised condition (Afessa *et al.,* 2001; Udoh *et al., 2009*). *Salmonella* causes an acute life - threatening illness (CDC, 2008), and is mainly transmitted through urine or feces of infected people or a chronic carrier. Some serotypes of *Salmonella* species are known cause non-typhi salmonellosis of which results in gastroenteritis in humans. The symptoms include acute watery diarrhea accompanied by nausea, cramps and fever. Blood in the stool may occur. Animals are the main reservoir, and transmission occurs by ingestion of contaminated food products (CDC, 2008).

Staphylococcus aureus is a normal flora of some body parts of man. According to Tauxe (2002), it can be transmitted from person to product through unhygienic practices. Therefore, presence of *Staphylococcus aureus* in the roasted pork studied is an indication of possible contamination from human sources to the meat from the skin, mouth or nose of the handler which can be introduces directly into the food by contact or other aerial-droplet mechanisms such as coughing or sneezing (Yannick *et al*., 2013). However, according to Evenson *et al.,* (1988), and Nema *et al., (*2007), enterotoxin producing strains of *S. aureus* is a leading cause of food intoxication as it can produce extremely potent gastrointestinal toxin *Escherichia coli* and *Enterobacter* species isolated in the study are enteric organisms. Their presence in the pork is an indication generally traceable to fecal contamination either direct or indirect means. They are normal flora of the intestine in human and animals and are widely distributed in the environment contaminating food and water. Moreover, their presences in foods are usually as a result of excessive human handling and possible contamination of pork itself during sales (Clarence et *al*., 2009). The pork that has been processed and kept for some days to be sold stand a chance to been contaminated especially when exposing such meat for consumers to see. *Escherichia coli* and *Enterobacter* species have been implicated in the ability to initiate the pathogenic cascade of sepsis leading to septic shock (Prescott *et al.,* 2002). Notably is the fact that *Enterobacter* species are bacteria commonly known to further cause gastroenteritis, meningitis, and infection in the bladder (Nester *et al.,* 1995). More so, an enterotoxigenic strain of *E. coli* is the most common cause of traveler's diarrhea and some strains of this pathogen can cause a wide variety of infections such as other forms of diarrhea and other gastrointestinal problems especially in a community setting (Donnenberg *et al.,* 2005). Pork or other food products that contain E. coli in its infective dose can be a continuous source of infections leading to complications and death especially among children and immunocompromised individuals (Ternhag et al., 2008).

The presence of *Vibrio* species is one of the potential sources of diarrhoeal diseases. These organisms are normally found in marine and estuarine environments throughout the world (McLaughln, 1995). The major mode of transmission is through contaminated water and food, or person-to-person spread in the overcrowded and unhygienic environment.

Vibrio species especially *Vibrio cholerae* causes severe watery diarrhea, which can reach up to 20 liters per day (McLaughln, 1995; Udoh and Itah, 2012). *Vibrio cholerae* produces a potent enterotoxin called choleragen that is responsible for the symptoms of cholera which could cause dehydration and many more diseases (Nester *et al.,* 1995; Sack *et al*., 2004). According to WHO (1995), diarrheal diseases have been known and recognized throughout history as one of the prevailing cause of childhood death and more potential life loss than all other causes combined. In developing country, food-borne infection such as diarrheal diseases can have long- term effects especially on children's growth as well as their physical and cognitive development and can lead to many complications and death of both children and adults (Adak et al., 2005).

The fungi isolated from this study were mainly Aspergillus niger and Penicillium spp. They have been known to produce mycotoxin which causes food intoxication to consumers (Udoh et al., 2018).The Aspergillus spp is of medical significance because of the production of their aflatoxin. Their presence in food could be due to poor handling of the meat, unhygienic environment, improper storage facility and condition as well as lack of proper personal hygiene. (Licorish et al., (1985) and WHO, (2015) reported that the presence of Penicillium spp in food must be avoided since it can lead to allergic reactions. and arising of penicillin resistance in human pathogenic bacteria.

The microbiological counts in this study showed the microbial density in both freshly prepared and exposed roasted pork (FPTP) and dried and exposed roasted pork (DERP). Freshly prepared and exposed roasted pork (FPTP) had lesser microbial count as compared to dried and exposed roasted pork (DERP). The level of microbial contamination of the pork samples was further observed as some samples had microbial loads that exceeded the recommended as limit of bacterial counts (10^5 CFU/g) of the international standards for micro-organisms in foods (ICMSF 2011). Most outstanding were especially observed from DERP samples, notably those from Ikpa road and Nuaniba - Use offot road, in which their enumeration of THBC were too numerous to count (TNTC) exceeding the international standards of (10^5 CFU/g). To further showed that the DERP samples were highly contaminated pathogenic organisms, *Vibrio* and fungal microbes were also isolated obtained from DERP.

Their presence of these microbial contaminants in the pork samples may be due to the unhygienic status of the slaughter houses, which portrays that the pork was poorly prepared and even the prolonged exposure to the surroundings. Other pre-disposing factors of contamination of the meat that could warrant the presence of these organisms could also be processing points, handling and selling (Yannick *et al*., 2013). According to Ellis, and Goodacre, (2001), and Tauxe, (2006), the health status of animals prior to slaughtering, and prevailing circumstances in the slaughter contributes to the quality of meat from such animals. It was also noticed that in the study area, there is none of the station that cover this meat product but rather, they are placed on the net for passerby to see and patronize. Hence, there is every tendency for atmospheric organisms to settle on these products thereby contaminating them. The customers' effect of touching and selecting the ones to buy, talking and interacting the sellers before the net where the products are kept, even coughing, and sneezing at the sell points can bring the isolates to settle on the products. Moreover, the condition of handlers packing the left-over that has not been sold into the containers to be exposed the next day, and the method of preservation of the meat equally is the source of microbial contamination. Other predisposing factors could account for the growth of these organisms in pork could be the feeding habit of the pig. Mossel *et al*., (1995) made a point that pig mostly feed on corn and soybean with a mixture of vitamins, and minerals added to the diet, the feed could serve as medium for the growth of these organisms. Moreover, the isolation of these organisms in roasted pork indicates a state of poor hygiene and environmental sanitation in some places where the meat is being processed to where it is being sold (Daniyan, 2011). The roasting, exposure as well as handling could also affect the meat quality (Mossel et al., 1995).

V. Conclusion

Roasted pork sold in Uyo metropolis harbor microorganisms. It is very necessary that pork should be in good quality, and this comes as a result of good rearing condition, handling during slaughter, preparation method and transportation. Therefore, pork processors, handlers, and sellers should observe strict hygiene measures so that they may not serve as a source of inoculation of the microorganisms into the meat product. Meat handlers should be educated on the adverse effect of lack of proper personal, and environmental hygiene, and sanitation. Veterinary doctors should inspect the animal before it is slaughtered to establish the fitness of the meat for consumption. Government should set up local regulatory bodies to monitor and regulate the sale of pork. Emphasizing the need of clean environments and placing of the pork in well covered show- case. Consumers should insist on adequate reheating of the pork to destroy vegetative cells. Public heath programme is of good necessity to enlighten and educate the general public on the health implications of consuming contaminated meat products, highlighting the fact that the presence of these pathogenic microbial contaminants with high counts in the pork consumed could lead to an outbreak of disease in the study area and beyond.

Conflicts of Interest

We state that the work has no potential conflicts of interest.

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Genitive Communication - Anogenital Warts - Condylomata Acuminatum

By Anubha Bajaj

Preface- Human Papilloma Virus (HPV) is a miniature DNA (deoxy ribonucleic acid) virus of the family Papovaviridae which primarily access the squamous cells. The categories of HPV exceed a 100[(11)]. Histological transformation and infiltrative malignant neoplasm in the vulva and anogenital area such as Condyloma, Verrucous lesions, tiny Papules or Plaque like modification and Vulvar Intraepithelial Neoplasia (VIN) are elucidated with various HPV classes. Condylomata acuminatum is a classic, well differentiated lesion which exemplifies acanthosis, hyperkeratosis, parakeratosis, dyskeratosis with koilocytosis[(2)]. Bowenoid papulosis comprises of multiple, red - brown genito-anal papules with epidermal adaptations identical to the Bowen's disease on histology. Malignant conversion has been scripted in what is essentially a benign disease[(10)]. Female companions of males contaminated with the virus display an enhanced probability of cervical cancer[(4)]. Histopathology and Serological investigations may be required as the clinical elucidation may be inadequate. Classification of the high risk genotypes of HPV is desirable due to the affiliation with cervical cancer and bowenoid papulosis. Anogenital warts (condylomata acuminatum) are a viral disorder with a frequent sexual transmission. Women are implicated in two-thirds of the patient population, though both sexes are afflicted.

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Genitive Communication - Anogenital Warts - Condylomata Acuminatum

Anubha Bajaj

I. Preface

Human Papilloma Virus (HPV) is a miniature DNA (deoxy ribonucleic acid) virus of the family Papovaviridae which primarily access the squamous cells. The categories of HPV exceed a 100[11]. Histological transformation and infiltrative malignant neoplasm in the vulva and anogenital area such as Condyloma, Verrucous lesions, tiny Papules or Plaque like modification and Vulvar Intraepithelial Neoplasia (VIN) are elucidated with various HPV classes. Condylomata acuminatum is a classic, well differentiated lesion which exemplifies acanthosis, hyperkeratosis, parakeratosis, dyskeratosis with koilocytosis[2]. Bowenoid papulosis comprises of multiple, red - brown genito-anal papules with epidermal adaptations identical to the Bowen's disease on histology. Malignant conversion has been scripted in what is essentially a benign disease[10]. Female companions of males contaminated with the virus display an enhanced probability of cervical cancer[4]. Histopathology and Serological investigations may be required as the clinical elucidation may be inadequate. Classification of the high risk genotypes of HPV is desirable due to the affiliation with cervical cancer and bowenoid papulosis. Anogenital warts (condylomata acuminatum) are a viral disorder with a frequent sexual transmission. Women are implicated in two-thirds of the patient population, though both sexes are afflicted.

II. Causatum and Prospects

Condylomata acuminatum commences from the Human Papilloma Virus (HPV), a family of highly contagious double stranded DNA viruses, essentially exhibiting a sexual transmission. Lesions appear in 3 weeks to 8 months after initial exposure. Majority of the infections are transitory and dissipate within 2 years. Almost 35 sub- categories of HPV are limited to the anogenital epithelium with a probability of malignant conversion such as cervical and anal cancer[5]. High risk serotypes 16 and 18 collaborate with low risk subtypes of HPV such as 6 & 11 to elucidate benign condylomas and low grade intra epithelial neoplasia without incorporating in the host genome. Intermediate risk HPV subtypes delineate a high grade dysplasia which may persevere with negligible evolution and invasion.

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Condylomata emerge from sexual activity Digital / anal, oral / anal and digital / vaginal contact possibly disperses the virus besides various fomites. Immune suppression predisposes to the disorder. The contamination in women is largely transmitted by vaginal intercourse. Anal condyloma may evolve from vulvar or perineal infections or by recipient anal intercourse. Numerous sexual participants enhances the occurrence of the disease (condylomata 7 times frequent and recurrent condylomata 12 times) in contrast to a singular partner with equivalent predisposition in both the genders. Previous exposure to a sexually transmitted disorder or oral herpes is concordant with a possible condyloma. The cavity of the prepuce or the penile shaft is implicated in the heterosexual or homosexual process. Heterosexuals may elucidate perianal lesions, although these are usually encountered in the homosexuals. Condylomas are preponderant in the HIV (human immune deficiency virus) infected individuals besides those with variants of STD (7%) and may evolve into a squamous cell carcinoma if the contamination persists. Diminished CD4 T lymphocyte count (<500 cells/μl) and frequent administration of drug injections may elucidate a vulvovaginal or perianal lesion. Efficacious antiretroviral therapy reduces the incidence of these lesions.

III. Scientific Indications

Condylomata acuminatum manifests clinically contingent to various lesions with pertinent locations. A smattering of warts frequently lack characteristic features. However patients exhibit itching, bleeding, burning, localized tenderness, pain and vaginal discharge (in females). Occasionally, exophytic and extensive warty clusters are evidenced which may impede defecation, intercourse or vaginal delivery. Proximal anal canal configurations may incite a stricture.

IV. Interpretation

Visual inspection of the site of involvement is recommended. Smooth, flattened, skin coloured or pink papules or verrucous papillae may be encountered. Anoscopy, Sigmoidoscopy, Colposcopy and/or a Vulvovaginal examination is indicated to evaluate the magnitude of the disease. High resolution anoscopy is frequently employed to augment tissue visualization. Application of 5% acetic acid produces a pearly white

lesion which simplifies the recognition of the lesion, though the measure is non-specific.

V. Histopathology

Condylomata acminatum or venereal warts (commonly an HPV 6 genesis) develop in the vicinity of the anus, vulva, glans penis and mucosal membranes such as the oral cavity. Focal epidermal hyperplasia is substantiated by hyperkeratosis, parakeratosis, varying or extensive acanthosis and papillomatosis. Trichilemmal type of keratinisation may emerge[13]. Vacuolated cells may be visualized in the upper malphigian layer in the early lesions. Atypical cells, characterized by abundant, eosinophilic cytoplasmic accumulations may be demonstrated. Miniature vacuolated cells and pyknotic nuclei are exhibited in the thick, basal stratum corneum[13]. Ancient verrucae may emerge as papillomas or keratosis. Flat warts with involution display a degenerative epidermis and a prominent mononuclear dermal or intra-epidermal inflammation. The viral nuclear inclusions are basophilic. They can be established with immunohistochemistry and in-situ hybridization procedures. The eosinophilic aggregates in the cytoplasm are indicative of aggregated tonofilaments. In concordance with the HPV induced lesions, benign or malignant skin tumours or tumour like conditions manifest, such as seborrheic keratosis, bowen's disease, invasive squamous cell carcinoma and epidermodysplasia verruciformis. The keratinocytes reveal altered keratin on account of the viral infection and further alterations ensue with malignant conversion. A biopsy may be contemplated with ambiguous lesions, in the patients refractory to therapy, in immune-deficient individuals, with extensive lesions or lesions which elucidate atypical components. A routine biopsy can be advocated to investigate a dysplasia.

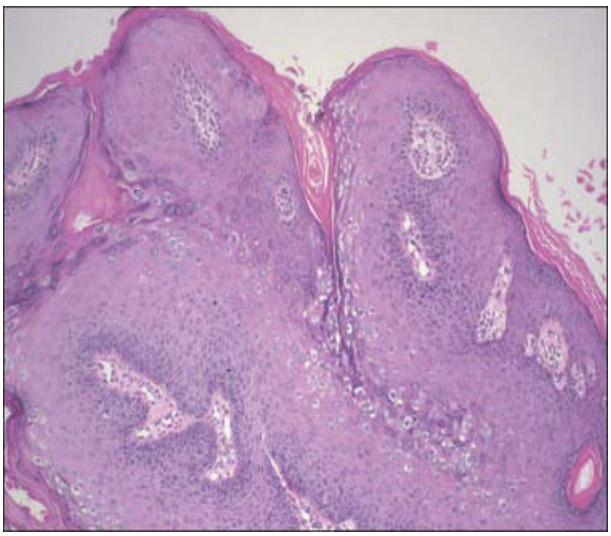

Fig. 1: Condylomata Acuminatum with a Fibrovascular Core

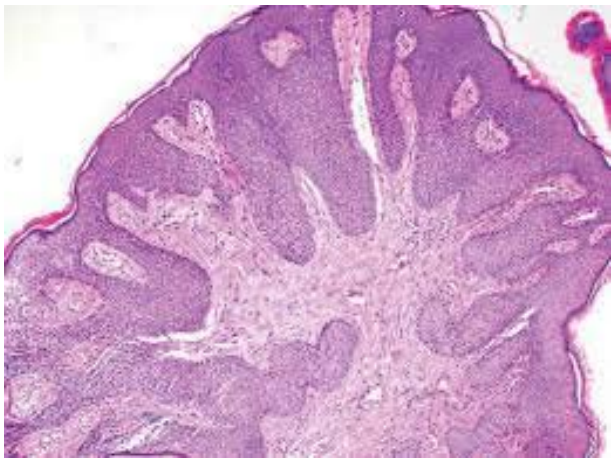

Fig. 2: Condylomata Acuminatum - Vulva

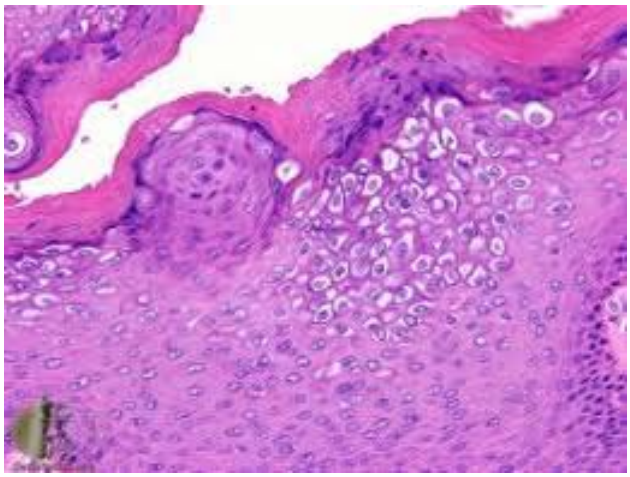

Fig. 3: Koilocytes in Condyloma

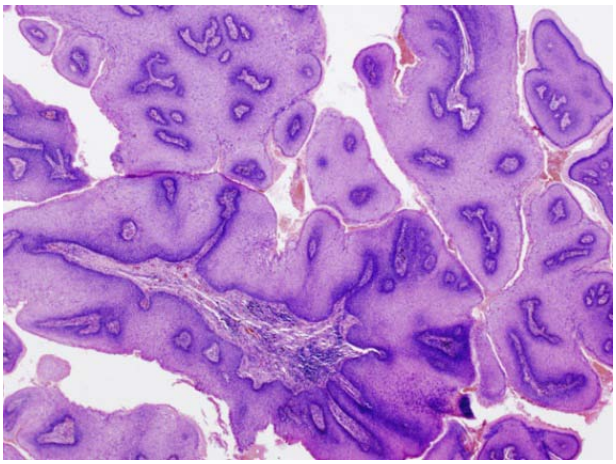

Fig. 4: Anal Condyloma with Branching and Papillae

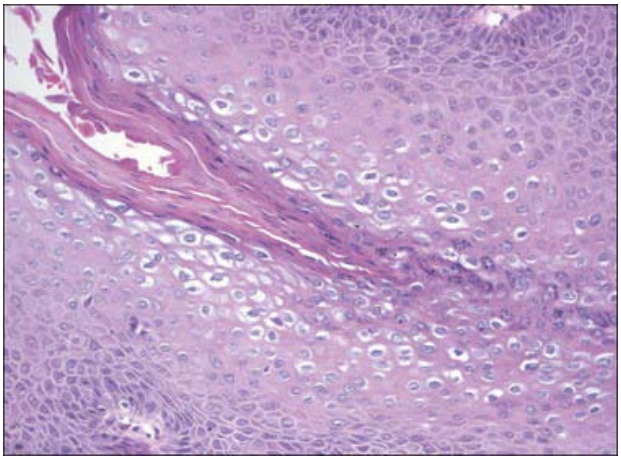

Fig. 5: Condyloma with Koilocytic Atypia with Parakeratosis

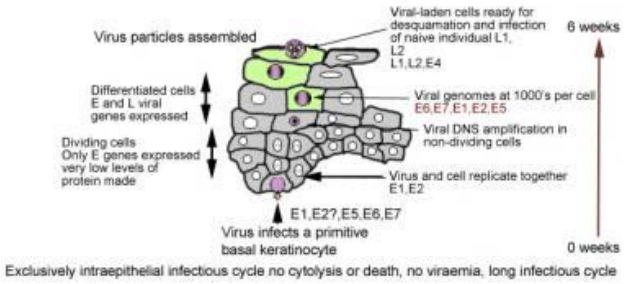

Fig. 6: Penetration of the Human Papilloma Viral Particle

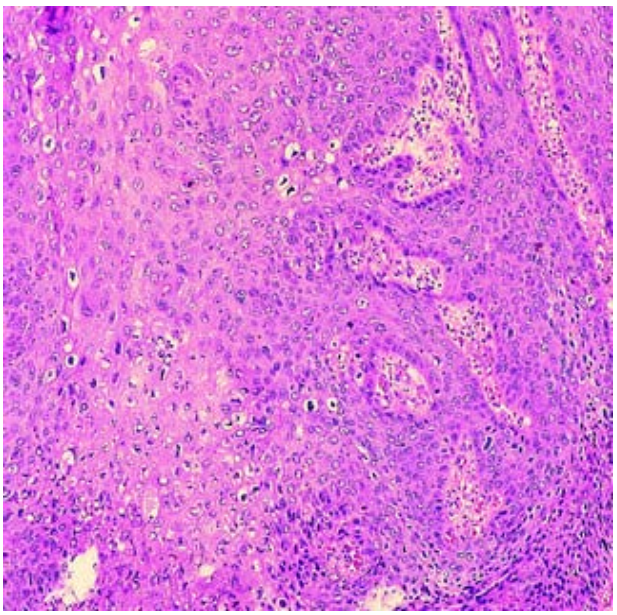

Fig. 7: Bowenoid Papulosis with Koilocytes, Mild Dysplasia and Mitosis.

VI. Determinants

Detection of the subtypes of the contaminant HPV is essential to specify the patients which may progress to squamous cell carcinoma. Anogenital tumours induced by HPV may be clinically challenging and troublesome to diagnose and treat. Determination of the virus incorporates In situ hybridization (ISH), Southern blot hybridization method, Dot blot hybridisation, Polymerase Chain Reaction (PCR) and real-time PCR. However the technique of ISH for diagnosing the HPV is inferior and insensitive. Besides PCR and real time PCR require valuable machinery such as a thermal cycle[8]. A Hybriobio geno array test for HPV genotyping can be utilized as a commercial kit. It is an expeditious, efficacious, specific and sensitive technique to ascertain the HPV DNA. The test displays a decisive concordance which exceeds that of 95% with the interpolation of the commercial kit and the viral DNA sequencing. The concurrence of the real time PCR and viral DNA sequencing is around 95%. Viral DNA sequencing is the gold standard. The real time PCR is a dependable, sensitive and a specific investigation to discover the infections created by the high risk and low risk HPV genotypes[6].

VII. Distinguishing Diagnoses

Condylomata acuminatum requires distinction from condylomata lata, a pattern of condyloma which develops in secondary syphilis. Condylomata lata delineates flat and velvety lesions. Generally, micropapillomatosis of the vulva ensues. A solitary base abuts each individual papillary projection, in contrast to the condylomata acuminatum where multiple papillae emerge from a singular base. Verrucous lesions, which are painful and perianal, develop in concurrence with the contamination of Herpes Simplex virus and HIV infection. Anogenital squamous cell carcinoma may coincide with condylomata acuminatum. Ulcerated and ambiguous lesions require a biopsy. Lesions with three previous treatment protocols or if unresolved within six months of therapy require a histological re-assessment. Immune-deficient patients, those beyond 40 years of age, pigmented, anomalous lesions also necessitate a re-evaluation. Demarcation is also required from disorders such as hymenal remnants, vulvar intraepithelial neoplasia (in women), molluscum contagiosum, skin tags and angiofibromas.

VIII. Therapies Numero Uno

Three major modalities are instituted: Chemical or Physical destruction, Immune therapy and Surgical excision. Topical anti microbial agents have a restricted collusion. The number and magnitude of lesions dictate the mode of therapy. However, the therapeutic interventions for genital warts may be inadequate as the reoccurrence is up to 30-70 % within 6 months. Spontaneous retrogression may occur within 3 months in 20-30 % cases. An exceptional or a pertinent treatment option for the entire panorama of warts is nonexistent. Trichloracetic acid or podopyhllin may be applied to the warts. Imiquimod, podophyllin or

extended patient analysis is then required. Self application of imiquimod or podofillox is beneficial in the absence of trichloracetic acid or podophyllin. Surgical intervention is recommended for enormous lesions. (Gynaecologic / Anorectal surgery).

Chemical agents incorporate podophyllin, trichloracetic acid or 5 fluorouracil / epinephrine gel. Podophyllin is a decoction of podophyllum peltatum, comprising of an anti mitotic agent podophyllotoxin which arrests the cell cycle in metaphase with consequent cell demise. A 0.5% concentration of podofilox / podophyllotoxin can be employed. Reoccurrence occurs in 43% individuals in 12 weeks. Trichorlacetic acetic (TCA) decimates the wart by protein coagulation in 80 to 90% cases. 5 Flurouracil / Epinephrine gel is a pyramidine antimetabolite that mediates in DNA synthesis, arrests the methylation of deoxy uridylic acid thereby resulting in cellular demise. Intra-lesion injection of epinephrine enhances the resolution of the warts, particularly with integrated therapy. At 3 months 50-60% lesions tend to reoccur.

IX. Immune Modulation

Imiquimod and interferon alpha are dual immune modulating agents which can be utilized. Imiquimod is an immune transformer which activates local cytokines. Vulval and Anal intraepithelial neoplasia may be managed with the same. Interferon Alpha, when employed with for systemic therapy comprehensively remedies the anal condyloma in 25-80% individuals. Ancillary alpha interferon therapy in conjunction with the 5 fluorouracil cream or laser ablation elucidates a reoccurrence of 6% in contrast to a figure of 24% with no additional treatment.

X. Surgery

Excision or surgical ablation is optimal with the non performance of medical therapy and for warts susceptible to surgery. Cryotherapy is an outpatient technique which employs liquid nitrogen spray. Laser therapy necessitates an operation theatre or a mobile surgical and anaesthetic service. The warts are disposed of in a 100% cases (33), nevertheless reoccurrence ensues in 45%. Surgical intervention is an exorbitant procedure for treating warts.

XI. Excision Modalities

Knife or scissor excision requires anaesthesia. Infection and haemorrhage may probably emerge. Complete eradication occurs in 36% cases. Condylomata acuminatum treated with excision requires evaluation for squamous cell carcinoma. Antimicrobials can be topically adopted inclusive of Cidofovir and Bacille Calmette Guerin (BCG). Cidofovir competitively restricts the viral Deoxy Ribonuclease (DNA) by incorporating viral DNA polymerase. The drug mediates and prevents the extension of the DNA. Bacille Calmette Guerin (BCG) elucidates a partial or a negligible recovery.

XII. Infrared Coagulation

Tissue coagulation is attained by a narrow beam of infra red light focussed within a probe. Hemorrhoids, tattoos, chronic rhinitis, ablation of common warts and anogenital condylomata (82%) are benefitted by the modality. Reoccurrence can be managed with excision or fulguration. A partial biopsy is required for evaluating malignant conversion. Cryotherapy may be employed subsequent to recovery. Ancillary treatment with imiquimod cream is recommended.

XIII. Conclusion

Human Papilloma Virus (HPV) appertains to the Papillomaviridae family, a divergent class of viruses which contaminate the skin and the mucosal epithelium of numerous vertebrate species. Forty kinds of HPV pertaining to the genus papillomavirus have been identified. These contaminate the epithelium and mucosal lining of the anogenital tract[1]. HPV subtypes are categorized as per the probability of malignant transformation as low risk or high risk. Low risk HPV subtypes (HPV 6 & 11) produce common genital warts such as condylomata acuminatum, benign hyper-proliferative lesion and a controlled development of malignancy. Condylomata acuminatum are discovered with HPV 6 or 11 or both in 90% individuals and with HPV11/18 in about 4% cases. Concomitant infection by dual DNA subtypes can be detected by Hybribio HPV geno array test or viral DNA sequencing. Numerous HPV genotypes are ascertained with the Bowenoid Papulosis consisting of HPV 16,18,31,35,39,42 and 48(5). HPV 16 contamination is particularly connected with the squamous cell carcinoma in situ of the external genitalia such as Bowen's disease and Erythroplasia of Queryat[9].

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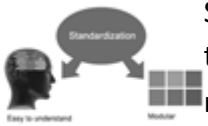

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The "FARSC" is a dignified title which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., FARSC or William Walldroff, M.S., FARSC.

The IFOARS institution is entitled to form a Board comprised of one Chairperson and three to five board members preferably from different streams. The Board will be recognized as "Institutional Board of Open Association of Research Society"-(IBOARS).

The Institute will be entitled to following benefits:

The IBOARS can initially review research papers of their institute and recommend them to publish with respective journal of Global Journals. It can also review the papers of other institutions after obtaining our consent. The second review will be done by peer reviewer of Global Journals Incorporation (USA) The Board is at liberty to appoint a peer reviewer with the approval of chairperson after consulting us.

The author fees of such paper may be waived off up to 40%.

The Global Journals Incorporation (USA) at its discretion can also refer double blind peer reviewed paper at their end to the board for the verification and to get recommendation for final stage of acceptance of publication.

The IBOARS can organize symposium/seminar/conference in their country on behalf of Global Journals Incorporation (USA)-OARS (USA). The terms and conditions can be discussed separately.

The Board can also play vital role by exploring and giving valuable suggestions regarding the Standards of "Open Association of Research Society, U.S.A (OARS)" so that proper amendment can take place for the benefit of entire research community. We shall provide details of particular standard only on receipt of request from the Board.

The board members can also join us as Individual Fellow with 40% discount on total fees applicable to Individual Fellow. They will be entitled to avail all the benefits as declared. Please visit Individual Fellow-sub menu of GlobalJournals.org to have more relevant details.

We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.

After nomination of your institution as "Institutional Fellow" and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.
The board can also take up the additional allied activities for betterment after our consultation.

The following entitlements are applicable to individual Fellows:

Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.

Open Association of Research Society (US)/ Global Journals Incorporation (USA), as described in Corporate Statements, are educational, research publishing and professional membership organizations. Achieving our individual Fellow or Associate status is based mainly on meeting stated educational research requirements.

Disbursement of 40% Royalty earned through Global Journals : Researcher = 50%, Peer Reviewer = 37.50%, Institution = 12.50% E.g. Out of 40%, the 20% benefit should be passed on to researcher, 15 % benefit towards remuneration should be given to a reviewer and remaining 5% is to be retained by the institution.

We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth $ 2376 USD.

Other:

The individual Fellow and Associate designations accredited by Open Association of Research Society (US) credentials signify guarantees following achievements:

- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.

- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10%discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
- The Fellow can earn 60% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.
- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in–depth understanding of the application of suitable techniques to a particular area of research practice.

Note :

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- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of "Difference of Opinion [if any]" among the Board members, our decision will be final and binding to everyone.

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Preferred Author Guidelines

We accept the manuscript submissions in any standard (generic) format.

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from https://globaljournals.org/Template

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at submit@globaljournals.org or get in touch with chiefeditor@globaljournals.org if they wish to send the abstract before submission.

Before and during Submission

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct,* along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s') names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

Declaration of Conflicts of Interest

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

Policy on Plagiarism

Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures

- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

Authorship Policies

Global Journals follows the definition of authorship set up by the Open Association of Research Society, USA. According to its guidelines, authorship criteria must be based on:

1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

Copyright

During submission of the manuscript, the author is confirming an exclusive license agreement with Global Journals which gives Global Journals the authority to reproduce, reuse, and republish authors' research. We also believe in flexible copyright terms where copyright may remain with authors/employers/institutions as well. Contact your editor after acceptance to choose your copyright policy. You may follow this form for copyright transfers.

Appealing Decisions

Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

Declaration of funding sources

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

Preparing your Manuscript

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.

Format Structure

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Eletronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

Tips for writing a good quality Medical Research Paper

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of medical research then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.

6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.

Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

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	A-B	**C-D**	**E-F**
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Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

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