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Surgeries and Cardiovascular System

Effectiveness of Subtenon's Anesthesia versus Peribulbar Anesthesia in Cataract Surgeries

Developmental Anomalies

Highlights

Discovering Thoughts, Inventing Future

VOLUME 14 ISSUE 5 VERSION 1.0

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Triple Vessel Coronary Artery Disease in Young Female

By Ali Razaghani & Hafeez-Ul-Hassanvirk
Thomas Jefferson University, United States

Background- Although coronary heart disease (CHD) primarily occurs in patients over the age of 40, younger men and women can be involved. Majority of studies have used an age cut-off of 40 to 45 years to define "young" patients with CHD or acute myocardial infarction (MI). The same age definition will be used in this article. The prevalence of CHD in younger subjects is difficult to establish accurately since it is frequently a silent process. Acute Myocardial infarction in young females is an uncommon occurrence and even if we see cases, very few of them have shown to have greater than one vessel coronary artery disease. When a young female present with acute MI, the presentation is very vague and can be easily missed so, presence or absence of cardiovascular risk factors regardless of age should be the key factor in making a decision to perform coronary angiography and full cardiovascular workup. We report here 31 year old female with multiple cardiovascular risk factors who presented with an atypical chest pain with normal EKG in emergency room and was ultimately diagnosed with triple vessel coronary artery disease. In this paper we will describe a case to describe the importance of early coronary angiography and cardiovascular workup in presence of significant risk factors despite atypical presentation and younger age of patient.

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Triple Vessel Coronary Artery Disease in Young Female

Ali Razaghani [α] & Hafeez-Ul-Hassanvirk [σ]

I. Background

Although coronary heart disease (CHD) primarily occurs in patients over the age of 40, younger men and women can be involved. Majority of studies have used an age cut-off of 40 to 45 years to define "young" patients with CHD or acute myocardial infarction (MI). The same age definition will be used in this article.

The prevalence of CHD in younger subjects is difficult to establish accurately since it is frequently a silent process.

Acute Myocardial infarction in young females is an uncommon occurrence and even if we see cases, very few of them have shown to have greater than one vessel coronary artery disease. When a young female present with acute MI, the presentation is very vague and can be easily missed so, presence or absence of cardiovascular risk factors regardless of age should be the key factor in making a decision to perform coronary angiography and full cardiovascular workup. We report here 31 year old female with multiple cardiovascular risk factors who presented with an atypical chest pain with normal EKG in emergency room and was ultimately diagnosed with triple vessel coronary artery disease. In this paper we will describe a case to describe the importance of early coronary angiography and cardiovascular workup in presence of significant risk factors despite atypical presentation and younger age of patient.

Conclusion:

II. Case Report

a) Presenting Complaint

31 Y O F p/w chest pain for 2 weeks.

b) History of Present Illness

31 year old Female with PMH of HTN, DM 2(on insulin), HLD, glaucoma, Major depression, Asthma was in her usual state of health 2 week ago when she started having chest pain. It was mid sternal, 10/10, intermittent, sharp/stabbing, and increased by lying down, improved by sitting associated with nausea but no vomiting. She woke up multiple times at night due to this pain. She preferred to sleep in front of fan due to dyspnea at night. She also had shortness of breath for couple of months on exertion. She has been recently using two pillows for sleep. She used to walk 4 blocks before getting short of breath (for years) but recently her exercise tolerance has decreased to half a block. She denies any palpitations, any previous history of such pain. Due to this pain, she went to the PMD who called 911 and sent her to ED.

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III. ED Course

By EMS, she received Aspirin 162mg po once. She received tylenol 650mg po once in ED.

ED VS: afebrile; HR 105/min; BP 146/81mmHg; RR 20/min; O2S 99% RA.

She is not compliant with the medications at home. She has a HHA 5days a week from 8am to 1pm. She has recently gained >20lbs in last year,

Past Medical History: Admitted in hospital multiple times for DKA.

Allergy: NKDA.

Hospitalization: multiple times for DKA.

GI: Not significant.

Family History: hypertension in sister, no diabetes in family.

Social History: HHA, quit smoking 2 years ago, nonalco- holic, no illicit drugs.

Gyne-Obsteterics: menses regula, not pregnant.

Allergies:

Home Medications: Lantus insulin q12h, Humalog with meals, Zyrtec 10mg daily, Simvastatin 20mg daily, Tricor 160mg daily, Cozaar 25mg daily, Vitamin D, Os-Ca.

Vitals: O2 Saturation: 98, Pulse Rate: 73*, Respirations: 17*, BP Position: Lying*, Systolic BP: 124*, Diastolic BP: 72*, Pain Level: 0*, POC Blood Glucose: 109, Temperature (F): 99.3*,, Body Mass Index: 37.55.

Physical E

General Exam: She was lying in bed, comfortably, fully oriented.

Head Exam: NC/AT.

Eye Exam: PEERLA, EOMI intact.

Neck Exam: supple, no JVD.

Respiratory Exam: CTA BL, no wheeze.

Cardiac Exam: S1 S2 heard, regular, tachycardiac.

Gastrointestinal Exam: ND/NT, BS+

Extremities Exam: palpable pulses, no cyanosis, minimal edema.

Neurological Exam: AAOx3

IV. Results

Initial Labs:

Normal

Cardiac Enzymes:

Troponin I : 2.6-->2.7-->2.8

CK-MB: 4.4→3.2→3.0

Cholesterol, Total	287 MG/DL
Cholesterol, HDL	48 MG/DL
Cholesterol, LDL (Calculated)	SEE TEXT
Cholesterol/HDL Ratio	6.0
Triglycerides	611 MG/DL

Diagnostic studies: TTE

Left Ventricle: The left ventricular cavity size is normal. Left ventricular wall motion is normal. Visually estimated left ventricular ejection fraction is 60%.

Right Ventricle: Normal right ventricular size and function.

Left Atrium: Normal left atrial size.

Right Atrium: Normal right atrial size.

Mitral Valve: The Doppler (color and spectral) study shows trivial mitral regurgitation.

AV and Aortic Root: The Doppler (color and spectral) study shows trivial aortic regurgitation.

Tricuspid Valve: The Doppler (color and spectral) study shows trivial tricuspid regurgitation. As assessed from the tricuspid regurgitant jet, the pulmonary artery systolic pressure is normal.

pulmonic valve: Structurally normal pulmonic valve without stenosis or regurgitation.

Aortic root: Normal aortic root.

V. Conclusions

Visually estimated left ventricular ejection fraction is 60%.

-Echo showed 60% EF

-Catheterization was done and showed 3V CAD

a) Plan

-start on heparin gtt, stop it 3 hrs before CABG

-start metoprolol 25mg bid po

-CABG tomorrow

-NPO after midnight

-stop aspirin/plavix for CABG

Endocrinology:

#DM 2

-IDDM for 20 yrs

-on insulin lantus 60U BID, 30U TID

plan:

-c/w insulin

#Asthma: well controlled last attack this winter family history+

There are also limited data on the frequency of MI in younger subjects. In the Framingham Heart Study, the incidence of an MI over a 10-year follow-up was12.9/1000 in men 30 to 34 years old and 5.2/1000 in women 35 to 44 years old [2]. The incidence of MI was eight to nine times greater in men and women aged 55 to 64 years. In other studies, 4 to 10 percent of patients with MI were ≤40 or 45 years of age [3-5]. In two series of patients with CHD at ≤40 years of age, women comprised 5.6 and 11.4 percent of patients [3,6].

Although CHD is an uncommon entity in young patients, it constitutes an important problem for the patient and the treating physician because of the devastating effect of this disease on the more active lifestyle of young patients. In addition, these patients have different risk factor profiles, clinical presentations, and prognoses than older patients. All of these factors should be taken into consideration when treating young patients with CHD

VI. Coronary Risk Factors

The relative importance of risk factors for the development of CHD according to age was evaluated in a report in which 11,016 men aged 18 to 39 years were followed for 20 years [7]. The relative risks associated with the traditional risk factors were of similar magnitude as in a group of 8955 men aged 40 to 59 years. These included:

- Age — relative risk 1.63 per six year increase
- Serum cholesterol — relative risk 1.92 per 40 mg/dL [1.04 mmol/L] increase
- Systolic blood pressure — relative risk 1.32 per 20 mmHg increase
- Cigarette smoking — relative risk 1.36 per 10 cigarette/day increase

Young patients with MI usually have multiple risk factors for CHD. In some studies, for example, as many as 90 to 97 percent had one or more traditional risk factors for atherosclerosis [8-10]. In a prospective study of over 7000 women of mean age 27 years at baseline followed for an average of 31 years, there were 47 CHD deaths [11]. The CHD mortality rates for those with no risk factors, only one risk factor, or two or more risk factors were 0.7, 2.4, and 5.4 per 1000 person-years, respectively. A comparable relationship was seen for cardiovascular disease mortality and for all-cause mortality. (See "Overview of the risk equivalents and established risk factors for cardiovascular disease".)

a) Smoking

Cigarette smoking is the most common and most modifiable risk factor in young patients. It has been noted in 65 to 92 percent of young patients with MI,

compared to 24 to 56 percent of patients older than 45 years of age [6,9,12-16]. (See "Cardiovascular risk of smoking and benefits of smoking cessation".)

b) Family history

Younger patients with CHD more often have a family history of premature CHD: 41 compared to 28 and 12 percent in middle aged or elderly patients, respectively [9]; and 57 versus 43 percent in two series [12]. A higher incidence of a positive family history in young patients (64 percent) was noted in the largest report of 823 patients [6].

In addition, the offspring of patients with premature CHD are more likely to have coronary risk factors than those without such a family history [17]. These include excess body weight and higher levels of serum cholesterol, glucose, and insulin. These offspring are also more likely to have evidence of vascular disease such as endothelial dysfunction and increased carotid artery intima-media thickness [18].

The association between family history and premature CHD can be due to both genetic and environmental factors. This was addressed in a study of 398 families in which 62 vascular biology genes were evaluated [19]. Missense variants of several thrombospondin genes were significantly associated with MI and CHD.

c) Lipid abnormalities

Hypercholesterolemia is common in young patients with CHD, but its prevalence is similar to that in older patients. However, when compared to older patients, young patients have lower mean serum high density lipoprotein (HDL) concentrations (35 versus 43 mg/dL [0.9 versus 1.1 mmol/L]) and higher serum triglycerides (239 versus 186 mg/dL [2.7 versus 2.1 mmol/L]) [15]. (See "HDL metabolism and approach to the patient with abnormal HDL-cholesterol levels".)

Hypertriglyceridemia was, in one series, the most common lipid abnormality in young patients with MI [20]. It may be associated with glucose intolerance and a predominance of small atherogenic LDL particles, both of which predispose to atherosclerosis. (See "Approach to the patient with hypertriglyceridemia".)

d) Diabetes and hypertension

Two other important coronary risk factors, diabetes mellitus and hypertension, appear to be less common in young patients with CHD than in older patients [6,12]. However, young patients frequently have subtle problems with glucose metabolism. In one study of 108 patients without a history of diabetes mellitus who had an MI before the age of 45, 65 percent had decreased oral glucose tolerance and a hyperinsulinemic response to oral glucose challenge [20]. This finding is consistent with other observations that impaired glucose tolerance in the absence of overt diabetes is a risk factor for coronary disease. (See "Prevalence of and risk factors for coronary heart disease in diabetes mellitus", section on 'CHD before diabetes'.)

e) Obesity

Obesity appears to be an independent risk factor for coronary atherosclerosis, at least in young men. This was illustrated in an autopsy study of approximately 3000 persons between the ages of 15 and 34 who died from noncardiac causes [21]. Increasing body mass index was associated with both fatty streaks and raised atherosclerotic lesions in the right coronary and left anterior descending coronary arteries in young men, but not young women. The effect of obesity on other risk factors (eg, lipid abnormalities, hypertension, glucose intolerance) accounted for only about 15 percent of the relationship between obesity and coronary atherosclerosis.

How this might occur is not known, but other studies have noted an apparently independent effect of obesity as an important coronary risk factor. A report from the Framingham Heart Study suggested that obesity in middle-aged subjects could account for as much as 23 percent of cases of CHD in men and 15 percent in women

f) Other factors

A variety of other possible contributing factors have been identified in young patients with MI. These include:

- Oral contraceptive use in young women, primarily when combined with heavy smoking [25]. (See "Risks and side effects associated with estrogen-progestin contraceptives".)
- Frequent cocaine use, which, in the Third National Health and Nutrition Examination Survey of 10,085 adults between the ages of 18 and 45, accounted for 25 percent of nonfatal MIs [26]. (See "Evaluation and management of the cardiovascular complications of cocaine abuse", section on 'Myocardial infarction'.)
- Smoking marijuana may be a rare trigger of MI [27]. (See "Cannabis use disorder: Treatment, prognosis, and long-term medical effects".)
- Factor V Leiden, which is inactivated less efficiently by activated protein C than wild-type factor V, leads to a procoagulant state by increasing thrombin generation. In a report of 107 patients with premature MI but no significant coronary artery stenosis (average age 44), the prevalence of carriers for factor V Leiden was significantly higher in these patients compared to 244 with an MI and significant stenoses and 400 healthy controls (12 versus 4.5 and 5 percent) [28]. At least in young women, the increase in risk with factor V Leiden may be confined to smokers

[29]. (See "Factor V Leiden and activated protein C resistance: Clinical manifestations and diagnosis".)

- Psychosocial factors, such as anger, may be important in the development of premature CHD [30]. (See "Psychosocial factors in coronary and cerebral vascular disease".)
- In women, acute MI may be

g) Angiographic Findings

In the majority of patients younger than 45 years of age, angiographic studies were performed because of a history of MI. As expected, major differences were found when compared to older patients.

h) Coronary disease severity

Younger patients have a higher incidence of normal coronary arteries, mild luminal irregularities, and single vessel coronary artery disease than do older patients [10,12,13,15,38].

One of the largest reports of angiographic findings in young patients with CHD comes from a substudy of the CASS trial, which compared the results of coronary angiography in 504 young men (≤35 years of age) and women (≤45 years of age) with a history of an MI to those in over 8300 older patients [12]. The following significant differences were noted:

- Normal coronary arteries were more common in the young patients (18 versus 3 percent). Young women had a higher frequency of angiographically normal coronary arteries than young men, despite a 10 year age difference in the definition of "young."
- Single vessel coronary disease was more common (38 versus 24 percent) and three vessel disease was less common (14 versus 39 percent) in the younger patients.
- Although some series have shown a predilection for involvement of the left anterior descending artery in young patients [13,38], this was not found in the CASS substudy.

In another large series of 823 young patients with CHD, single vessel disease was present in 55 to 60 percent [6].

- Symptomatic coronary heart disease (CHD) is uncommon in young men and women (age less than 40 to 45 years). (See 'Introduction' above.)
- Younger patients with CHD more often have a family history of premature CHD. (See 'Family history' above.)
- Cigarette smoking is the most common and most modifiable risk factor in young patients. (See 'Smoking' above.)
- Diabetes mellitus and hypertension appear to be less common in young patients with CHD than in older patients. (See 'Diabetes and hypertension' above.)
- Other risk factors such as cocaine use, factor V Leiden, and oral contraceptive use are more common in younger individuals with CHD. (See 'Other factors'above.)
- The clinical presentation of CHD in younger patients is different from that in older patients. A higher proportion of young patients do not experience angina, and, in the majority of cases, an acute coronary syndrome that progresses rapidly to MI if left untreated is the first manifestation of CHD. (See 'Clinical presentation' above.)
- Younger patients have a higher incidence of normal coronary arteries, mild luminal irregularities, and single vessel coronary artery disease than do older patients. Rarer causes of CHD such as spontaneous coronary dissection or Kawasaki disease occur more commonly in the young. (See 'Angiographic findings' above.)
- In general, the management of CHD in the young is similar to that in older individuals.

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Spontaneous Rupture of Multiple Renal Cysts with Massive Retroperitoneal Hematoma

By Salah A.M. Abdel hadi, Abbas A.R. Mohamed, Osama Shareefi & Khaled M.A. Hussin

Abstract- Spontaneous rupture of the kidney is a disruption of the renal parenchyma or the collecting system without significant trauma. It may lead to the formation of subcapsular or retroperitoneal hematomas. We present a case of spontaneous rupture of left kidney, with massive retroperito-neal hematoma caused by multiple simple renal cysts.

Keywords: kidney, renal cysts, spontaneous rupture, retroperitoneal hematoma.

GJMR-I Classification: NLMC Code: WG 625.R3

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Spontaneous Rupture of Multiple Renal Cysts with Massive Retroperitoneal Hematoma

Salah A.M. Abdel hadi [α], Abbas A.R. Mohamed [σ], Osama Shareefi [ρ] & Khaled M.A. Hussin [ω]

Abstract- **Spontaneous rupture of the kidney is a disruption of the renal parenchyma or the collecting system without significant trauma. It may lead to the formation of subcapsular or retroperitoneal hematomas. We present a case of spontaneous rupture of left kidney, with massive retroperitoneal hematoma caused by multiple simple renal cysts.**

Keywords: kidney, renal cysts, spontaneous rupture, retroperitoneal hematoma.

I. Introduction

Spontaneous retroperitoneal hemorrhage is an uncommon entity. It is even rarer when the underlying cause is associated with renal disease (1). Spontaneous rupture of the kidney affects either the collecting system or parenchyma and, in most cases, the non-traumatic rupture is associated with underlying diseases of the kidney (2). We report a case of spontaneous rupture of left kidney with massive retroperitoneal hematoma secondary to multiple simple renal cysts presented with hemorrhagic shock in a patient on anticoagulation therapy.

II. Case Report

An 85-year-old man was presented to our emergency department because of left flank pain and an increasing mass in his left flank of one day duration. He is known hypertensive and diabetic on medical treatment. His urological history was normal and he did not have a history of trauma. Two months earlier to his presentation he had confirmed deep vein thrombosis of the left femoral and popliteal veins and he was put on enoxaparin 60 mg subcutaneously twice daily. On examination he was conscious but drowsy. Pulse was 110/minute; blood pressure was 100/40 mm of Hg. Abdominal examination showed a palpable mass and tenderness over the left flank. There was no hematuria on urine analysis. Hemoglobin was 8.4 gram%, WBCC $20x10^{9,}$ urea 18.6mmol/L and creatinine 289 mmol/L. coagulation studies were normal.

After initial fluid resuscitation he had a non-contrasted CT scan which showed Left perinephric and retro peritoneal slightly dense (about 60 HU) fluid collection which measure about 19 x 4 cm extending down to the left upper pelvic region, together with a hypodense cyst(measures about 6 x 6.7 cm) in the upper pole of the right kidney. The left psoas muscle is slightly larger in size than the right one and it is bordering the left retroperitoneal fluid collection (figure 1-2).

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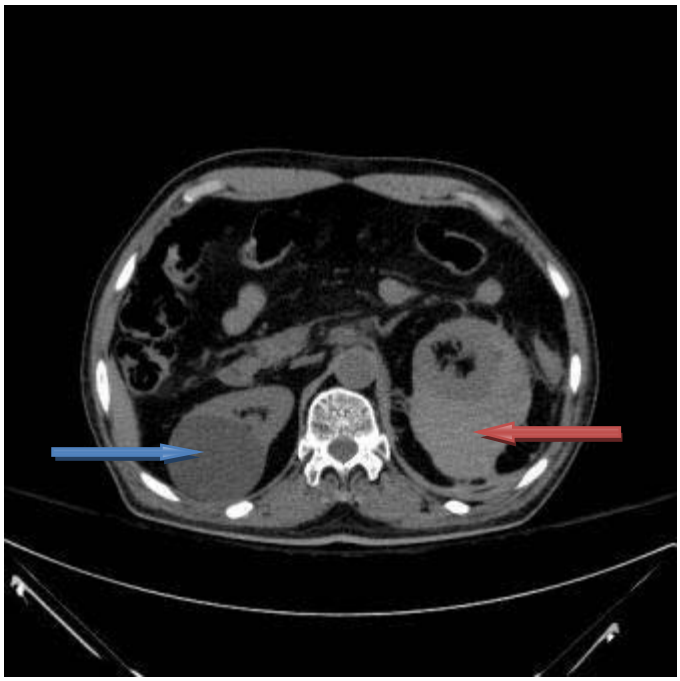

Figure 1 : plain CT scan showing the left perinepheric hematoma (red arrow) and the right renal cyst (blue arrow)

Figure 2 : Retroperitoneal extension of the perinepheric hematoma along the anterior aspect of the left psoas muscle to the pelvis

The patient was admitted to the ICU and continued to be resuscitated with blood and fresh frozen plasma. Inspite of 3 units of blood transfusion he dropped his hemoglobin to 5.4 gram% together with obvious increase in the left flank mass size. A decision was taken to go ahead with CT angiography with a possibility of percutaneous embolization of the renal artery. The CT angiogram showed a significant increase in the amount of the left renal, perirenal and retroperitoneal hematoma with evidence of contrast extravasations from renal cortex at different sites in the arterial and provenous phases denoting active bleeding associated with poor left renal excretion. The retroperitoneal hematoma is extending caudally to the left lower pelvis along the anterior aspect of the left psoas muscle together with mild free intraperitoneal fluid. Multiple small renal simple parenchymal cysts and double left renal arteries were noted. There was 7 x 6 cm right renal simple cyst (figure 3-5).

Figure 3 : Contrast enhanced CT scan (arterial phase) showing the haematoma with minimal free fluid at both paracolic gutters(green arrows)

Figure 4 : CT scan with IV contrast, coronal view (Porto venous phase) showing the extravasation of the contrast (the arrow) indicating active bleeding

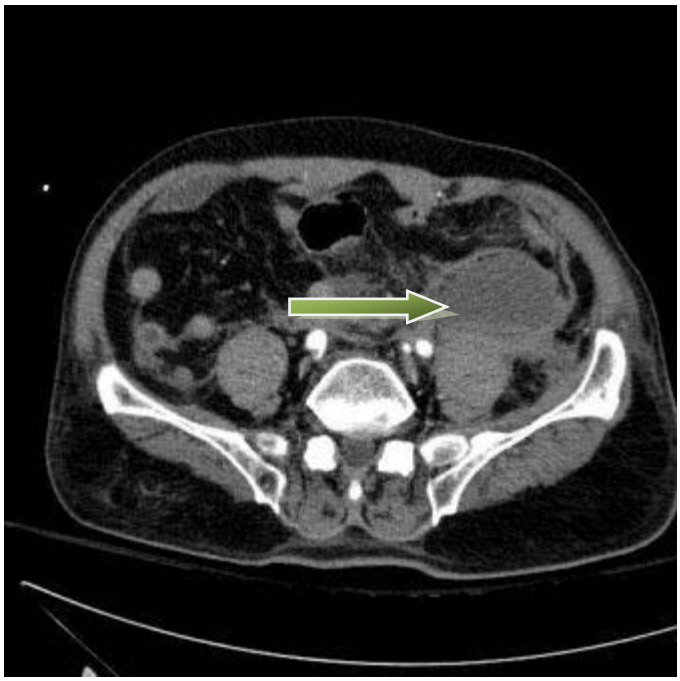

Figure 5 : lower cuts of the contrast enhanced CT scan showing the extension of the retroperitoneal haematoma into the lower pelvis (the green arrow)

In view of continuous dropping of the hemoglobin, expansion of the retroperitoneal hematoma and the CT evidence of active bleeding the patient were taken for emergency exploration through trans-peritoneal approach. Intra operatively there was extensive retroperitoneal hematoma extending from sub splenic region down to the pelvis and a huge cortical rupture on the posteriolateral aspect of the left kidney together with multiple ruptured and intact renal cysts (photo 1-3). The left ureter was of normal caliber and there was no evidence of backwards pressure on the renal pelvis. Left nephrectoy was done together with evacuation of the retroperitoneal hematoma and drainage of the retroperitoneal space. Postoperatively the patient had percutaneous insertion of inferior vena cava filters to prevent pulmonary embolism and was commenced on heparin subcutaneously. He remained haemodynamically stable and he didn't require further blood transfusion. The histopathology of the kidney revealed focal glommerulosclerosis with focal interstitial inflammation and ruptured multiple simple cortical cysts. There was no evidence of malignancy.

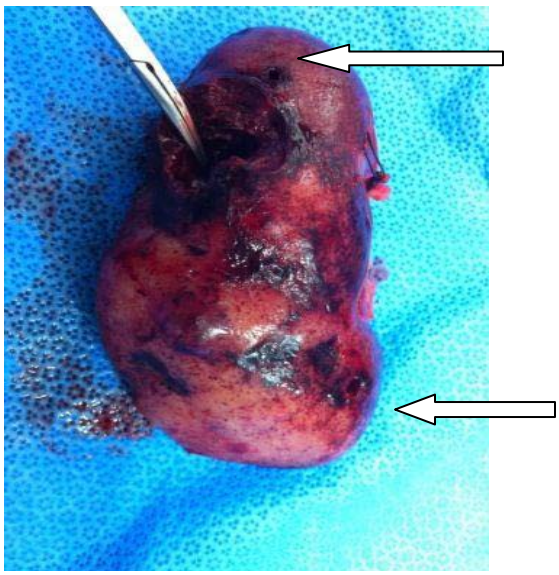

Photo 1 : Showing a ruptured large cyst (the artery forceps) and multiple small cysts (the arrows) in the posteriomedial aspect of the kidney

Photo 2 : the artery forceps pointing to an intact cyst

Photo 3 : the longitudinally opened kidney showing the ruptured cysts

III. Discussion

Definition of Wunderlich syndrome, also known as spontaneous retroperitoneal hemorrhage, was first given in 1700 by Bonet and was more completely explained by Wunderlich in 1856 (3). Etiologies as well as the precise mechanisms leading to Spontaneous nontraumatic massive retroperitoneal hemorrhage are unclear in most of the reported cases (4). It is usually secondary to a renal neoplasm, with angiomyolipoma being the most frequent followed by renal cell carcinoma (5) occurring in 57–73% of cases (6).

It also seen in association with patients with anticoagulation therapy, bleeding abnormalities, and hemodialysis (7) and may represent one of the most serious and potentially lethal complications of anticoagulation therapy. The incidence of retroperitoneal hematoma has been reported at 0.6-6.6% of patients

undergoing therapeutic anticoagulation (8, 9, and 10). Warfarin, unfractionated and low-molecular weight heparin have all been implicated (11).

Non-traumatic retroperitoneal hemorrhage due to a spontaneous kidney rupture is a known, but uncommon, entity (1).

Dougal et al examined 78 individual cases of renal rupture. He reported that renal tumor rupture was the cause in 58% of cases, vessel diseases in18% and infections in 10% of all cases of retroperitoneal bleeding (2).

In renal tumors the incidence is high in angiomyolipoma, occurring in 13-100% of the cases, depending on tumor size, while in renal cell carcinoma, it occurs in only 0.3-1.4% of cases (12).

Simple renal cysts are frequent, particularly in the elderly. Fifty per cent of individuals over 50 years of age have single or multiple cysts (13). Simple cysts are discrete lesions within the kidney that are typically cortical, extending outside the parenchyma and distorting the renal contour (14). They can be unilateral or bilateral, single or multiple. They are usually asymptoms. Their complications include obstruction, infection, rupture or hemorrhage, confined either to the cyst or causing subcapsular or peri-renal hemorrhage (1).

Many cases of kidney ruptures were reported in the literature in association with polycystic kidney disease (15-16), however although renal cysts are commonly seen, spontaneous hemorrhage into a cyst causing a massive retroperitoneal hematoma and circulatory compromise is an extremely rare event (17).

Blakeley CJ, et al report a case of a 45 year old woman presented with hemorrhagic shock secondary to Spontaneous retroperitoneal hemorrhage complicating rupture simple renal cyst(17).

The cause of cyst rupture with hemorrhage is unclear, as it is not known whether expansion with increased intracystic pressure occurs, with the subsequent tearing of blood vessels, or whether hemorrhage into the cyst is the first event, with subsequent rupture from cyst expansion (1, 18).

Although we don't know the exact mechanism of the kidney rupture in our case but we assume that rapid and spontaneous bleeding occurred into the cysts, followed by the cysts rupture, and eventually by retroperitoneal bleeding. We also believe that the prolong use of the enoxaparin contributed significantly to both triggering of the bleeding and the extent of the retroperitoneal hematoma.

Spontaneous rupture of the kidney usually present with classical 'Lenk's triad', consisting of acute flank pain, tenderness and symptoms of internal bleeding (19).

CT angiography is the gold standard investigation in patient suspected to have spontaneous kidney rupture. In addition to confirming the rupture it provides very crucial information that whether the bleeding is continuing or stopped.

Nephrectomy is the treatment of choice in patients with kidney rupture with severe perirenal hematoma and severe retroperitoneal bleeding (20, 2). The midline transabdominal approach is preferable as it allows safer vascular control before exploring the ruptured kidney, and should be considered in patients with signs of a large blood loss from heavy retroperitoneal bleeding.

Some authors advocate nephrectomy even if the renal angiogram failed to demonstrate the cause of the hemorrhage due to the possibility of a small clinically unapparent renal cell carcinoma (21, 22, and 23). In contrast, some others have advised a conservative approach when diagnostic studies fail to demonstrate a significant pathology (24). Renal arteriography with embolization is anther therapeutic option to control the bleeding in haemodynamically stable patients when renal tumors can be excluded (25).

IV. Summary

Non-traumatic retroperitoneal hemorrhage due to a spontaneous kidney rupture is a known, but uncommon. It is even rarer when the underlying cause is associated with renal disease. Spontaneous nontraumatic massive retroperitoneal hemorrhage (Wünderlich's syndrome) is usually secondary to a renal neoplasm, with angiomyolipoma being the most frequent followed by renal cell carcinoma. It is also seen in association with patients with anticoagulation therapy, bleeding abnormalities, and hemodialysis. Spontaneous rupture of the kidney usually present with classical 'Lenk's triad', consisting of acute flank pain, tenderness and symptoms of internal bleeding. CT scan almost always confirms the diagnosis and point out to the cause. Nephrectomy is the treatment of choice in patients with kidney rupture with severe perirenal hematoma and severe retroperitoneal bleeding.

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A Comparison Study of Complication Rates – To PICC or to CVC?

By Hilman Tjiang, Krishanth Naidu, Bella Nguyen & David Hardman

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Abstract- *Background:* Cost-effective, safe and dependable central venous access is fundamental in the care of anpatients. This study sets out to compare the complication rates between electively insertedperipheral (PICCs) and central venous cathethers (CVCs) in operating theatres.

Methods: A retrospective clinical audit was undertaken. Complications included in this study are: malposition events, thrombotic/thrombophlebitis, infectio n and dysfunction.

Results: A total of 189 patients met the inclusion cr iteria. Malpositioning of the catheter tips and thrombotic/thrombophlebitic events more often occurred after PICCs insertion than CVCs. There was no statistical difference in the catheter associated infection and dysfunctio n rate for PICCs and CVCs. The highest number of complications occured in the first 7 indwelling days.

Conclusion: This study highlights that the potential advantages of reduced expected cost- and labour- effectiveness of PICCs as traditionally perceived, may be inaccurate, and further awareness of complications associated with PICCs need to be considered.

Keywords: *central venous access, complications, PICC, CVC, thrombophlebitis.*

GJMR-I Classification: *NLMC Code: WI 480*

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A Comparison Study of Complication Rates – To PICC or to CVC?

Hilman Tjiang [α], Krishanth Naidu [σ] Bella Nguyen [ρ] & David Hardman [ω]

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I. Introduction

Obtaining central venous access that is cost effective, safe and dependable is an important consideration in the management of acutely ill patients. This access is important to provide prolonged administration of intravenous medication, access for chemotherapy, parenteral nutrition, haemodialysis, and resuscitation in intensive care settings.[1]

Central venous access can be achieved using two main groups of catheters, namely central venous catheters (CVCs) and peripherally inserted central catheters (PICCs). Due to the elimination of the associated risks of haemorrhage and pneumothorax with CVC insertion, and given that PICCs can be inserted at the bedside by medical and nurse-based teams, PICCs have been the favoured central catheter type. They are seen to be more cost-effective and labour efficient.

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In the past few years, there have been several studies and reviews, which have challenged whether PICCs improve overall quality of patient care. These studies argue that with increased complications such as malpositions, infections and thrombotic events associated with PICCs, they may not be as cost and labour effective as previously perceived. A recent meta-analysis has found malpositioning events (9.3% vs 3.4%); thrombophlebitis rates (78 vs 7.5 per 10 000 indwelling days); catheter dysfunction (78 vs 14 per 10,000 indwelling days) occurred more often in PICCs than CVCs respectively.[2] The usage of PICCs in replacement of CVCs for similar indications are reported to be increasing, and awareness that PICCs may have higher complication rate is not widespread.[1]

In light of this emerging evidence, this study sets out to compare the complication rates between PICCs and CVCs electively inserted in operating theatre by the anaesthetics team at The Canberra Hospital within a six months period. The complications looked at in this study include the malposition events, rates of thrombotic/thrombophlebitis, infection and dysfunction.

II. Methods

This study is a retrospective clinical audit of patient data using the medical record database at The Canberra Hospital. All patients, age greater than 16 years old, with central lines (PICCs and CVCs) inserted in the operating theatre by anaesthetists within six months period starting from 01/06/2011 to 31/12/2011 were included in the audit. Only non-tunnelled CVCs are included in this study. Complications included in this study are: malposition events, thrombotic/thrombo-phlebitis, infection and dysfunction.

Post-procedural X-ray showing the tip of the central line not being in the desirable position determines malposition event. The optimal positions of central catheter tips for most indications are recognised to be the distal portion of the Superior Vena Cava (SVC) and high right atrium.

Thrombotic/thrombophlebitis is defined to include transient superficial thrombophlebitis and phlebitis as clinical diagnosis of erythema and tenderness around the catheter exit site and thrombi, which form in the deep venous system, whichare demonstrated radiologically.

Infection is defined to include local skin infection as clinical diagnosis of erythematous, oozing

skin, with/without purulent discharge at site of exit of catheter; and Catheter-Related Bloodstream Infection (CRBSI). CRBSI is defined as "the clinical manifestation of bacteremia occurring in the absence of an apparent source of infection other than the catheter, proven when the same pathogen is isolated from the involved catheter and from blood cultures".[2] Dysfunction is defined as lumens being blocked for either receiving or drawing (i.e. events within the device).

The rates of complications are expressed in per 10,000 indwelling catheter days, which is calculated as the number of complication (events) over total indwelling days of the catheter multiplied by 10,000 days. Data collected was processed and analysed with Microsoft Excel 2012© for Windows. Statistics calculation was performed using MedCalc ©.

III. Results

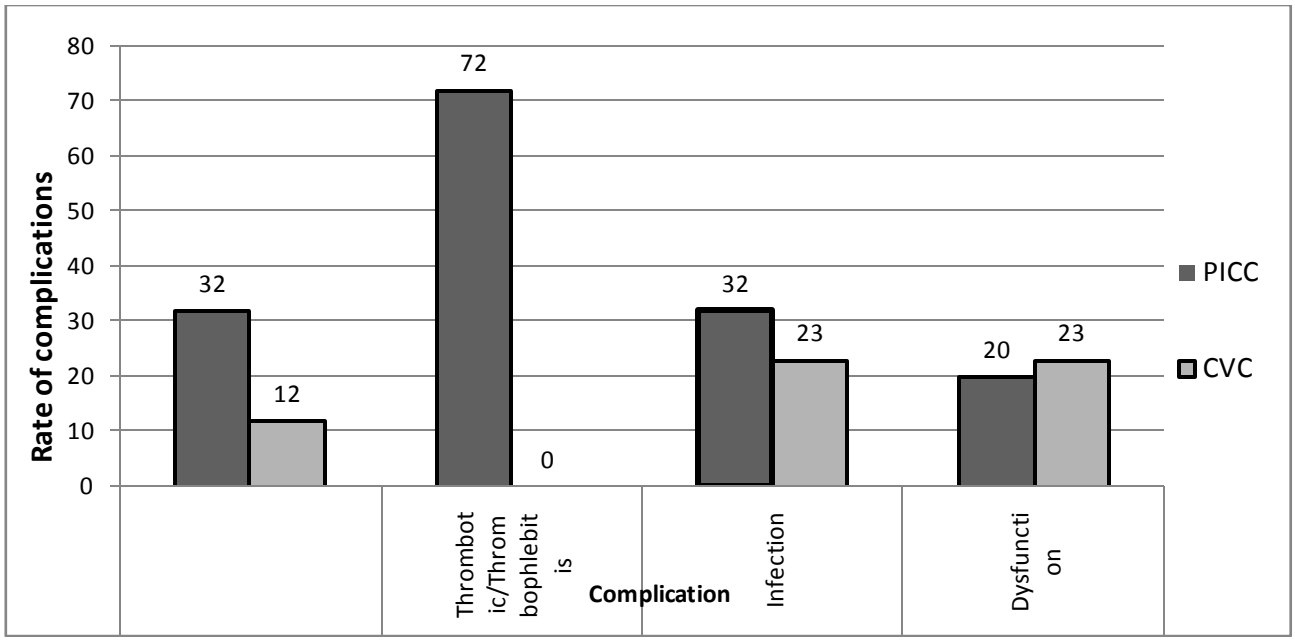
A total of 189 patients met the inclusion criteria with age ranging from 16 to 95 years old (mean age 60 years old). Gender breakdown for both central line types are roughly equal in number. One hundred and four PICCs (74.8%) were placed for prolonged antibiotic therapy and 15 (10.79%) to administer TPN. Twenty PICCs (14.39%) were inserted for other reasons, most commonly for patients with difficult IV access requiring blood sampling, or to administer insulin or heparin infusion. Twenty-seven CVCs (54%) were placed for haemodialysis access, 10 (20%) were inserted for IV antibiotics, 9 (18%) were inserted for TPN, 1 (2%) inserted for chemotherapy and 3 (6%) were inserted for IV access and resuscitation. PICCs have a mean indwelling time of 18 days and total of 2486 indwelling days. CVCs have a mean indwelling time of 9 days, with a total of 427 total indwelling days.

The complication rates of CVCs and PICCs in the study are summarised in Table 1 below. The most common complication in PICCs is thrombotic/thrombophlebitis events with 18 (72/10,000 indwelling days), whilst the most common complication in CVCs is malpositioning events (6 events; 12%).

Table 1 : Summary of complication rates in PICCs and CVCs inserted in 189 patients in operating theatre at The Canberra Hospital (between 1st June 2011 and 31st December 2011). * OR is estimated using the null hypothesis where there is 0 variable and regular OR unable to be calculated

Type of central catheter	Number of cases (%) n = 189	Total indwelling days	Malposition events (%)	Events (rate per 10,000 indwelling days)		
				Thrombotic/ Thrombophlebitis	Infection	Dysfunction
PICC	*139 (74%)*	*2486*	*45 (32%)*	*18 (72)*	*8 (32)*	*5 (20)*
CVC	*50 (26%)*	*427*	*6 (12%)*	*0 (0)*	*1 (23)*	*1 (23)*
Odds ratio (95% CI)			*3.63 (1.44 – 9.14)*	*4.46 (1.49 – 13.37)**	*2.99 (0.36 – 24.55)*	*1.83 (0.21 – 16.04)*

Malpositioning of the catheter tips more often occurred after PICCs insertion than CVCs (32% vs 12%; OR 3.51 (95% CI 1.39 – 8.84); P-value 0.006). Similarly, the rates of thrombotic/thrombophlebitis events were higher in PICCs than CVCs (72 vs 0/10,000 indwelling days; estimated OR 4.46 (95% CI 1.49 – 13.37)). There was no statistical difference in the catheter associated infection rates with 32 vs 23/10,000 indwelling days (OR 2.99; 95% CI (0.36 – 24.55); P-value 0.31) for PICCs and CVCs respectively. Similarly, the rate of dysfunction was found to be no difference between the two types of central lines (20 vs 23/10,000 indwelling days (OR 1.83; 95% CI (0.21 – 16.04)) for PICCs and CVCs respectively. These findings are summarised in Graph 1 below.



Graph 1 : Comparison of complications rates between PICCs and CVCs

Nil CVC tips sent to microbiology returned with positive growth for any microbiology, whilst seven PICCs returned with positive microbiology, namely Coagulase negative Staphylococcus (n=3); Micrococcus species (n=1); Streptococcus viridians (n=1) and mixed skin type flora (n=1). Additionally, we observed one possible case of CRBSI in a patient with PICC line inserted.

The data was also analysed to establish the number of catheter indwelling days before complications arise. The highest number of complications in both PICCs and CVCs occurred with total of 22 cases of PICCS and 2 cases of CVCs occurred during the first 7 indwelling days.

PICCs inserted for IV antibiotics have the highest rate of complications, with 11 thrombotic/thrombophlebitis events (44/10,000 indwelling days) followed by 8 infections (32/10,000 indwelling days) and 5 dysfunctions (20/10,000 indwelling days). PICCs inserted for TPN have the next highest rate of complications with 4 thrombotic/thrombophlebitis events (16/10,000 indwelling days), 3 infections (12/10,000 indwelling days) and 0 dysfunctions.

IV. Discussion

The findings of this study are compared with other studies performed elsewhere during the period 1966 – 2011 as described in literature review.[2] This study's complication rate of malposition is statistically significantly higher in PICCs than in CVCs (32% Vs 12%), and is consistent with the finding of other studies (Table 2). The malposition rate of 32% of this study is noted to be significantly higher than in other studies.[3,4]This study also showed that PICCs have higher rates of thrombotic/thrombophlebitis complications than CVCs, in contrast to four other studies which showed that CVCs have higher infection rates than PICCs.

Table 2 : Comparison of data collected in other studies with this study

Catheter type (number of events)	Total indwelling day	Malposition (%)	Complications rate (rate per 10,000 indweling days)			Study
			Thrombotic/ Thrombophlebitis	Infection	Dysfunction	
PICC (135) CVC (135)	1381 1056	4 3	22 0	0 19	36 0	(3)
PICC (51) CVC (51)	482 533	10 2	166 19	41 56	166 38	(4)
PICC (209) CVC (285)	2209 3597	10 2	113 33	9 22	131 14	(5)
PICC (472) CVC (713)	2313 4421	NA* NA*	246 41	9 0	151 149	(6)

PICC (75) CVC (31)	1815 583	NA* NA*	77 34	66 103	NA* NA*	(7)
PICC (139) CVC (50)	2486 247	*32%* *12%*	*72* *0*	*32* *23*	*36* *23*	This study

**NA: Data not reported*

It was discussed in a recent review, that lower infection rates in PICCs found in studies may have been due to comparison of rates between stable in-patient and/or outpatient in PICC cohorts, with unstable, acutely ill ICU patients in CVC cohorts.[8] It has been hypothesised that PICCs may also have lower infection rates due to the catheter insertion site of antecubital fossa, a less ideal environments for bacterial growth compared to the subclavian and jugular vein areas which may be contaminated by nasal and oral flora.[9]

One confounding factor explaining lower thrombotic/thrombophlebitis ratein CVCs in this study may be due to the predominant indication of CVCs is for haemodialysis, which often include the use of prophylactic heparin. PICCs were also found to have a significantly higher rate of malposition events, and it has been theorised that thrombosis could be caused by initial malposition event.[1] It may be useful for future studies to consider whether thromboprophylaxis in PICCs may reduce the complication rate.

Traditional ICU literature recommends approximately 1 week of indwelling time for CVCs, whilst there is a big range of recommended time of stay for PICCs in the literature. It is often assumed that for indications with longer indwelling time; PICCs would be the preferred choice to CVCs.[9] Our study shows that most complication arise within 7 days of catheter insertion, for both PICCs and CVCs. A review has also shown that 30-40% of PICC have to be removed before completion of therapy.[1]These findings suggest that PICCs may not necessarily have a lower rate of complications for indications, which require longer indwelling time.

There are limitations of this study that must be taken into consideration. Firstly, this was a retrospective study, the definition of complication cannot be standardised and relied solely on recorded documentations. Additionally, the study has limited sample size, particularly in CVCs with short indwelling days, and multiple zero for data collected in complication rates, making statistical analysis difficult.

There are multiple confounding factors identified in this study including patients' co-morbidities and immune status; and differences in indications between CVCs and PICCs mean that CVCs already have a biased of shorter indwelling time and therefore less possibility of having complications developing. The study also did not differentiate the complication differences in tunnelled versus non-tunnelled, jugular or subclavian inserted CVCs, which are widely reported in literature to have difference in complications rates.

V. Conclusion

Our study found that PICCs line has higher rate of complications, especially malposition events and thrombotic/thrombophlebitis, in comparison to CVCs. Serious complication, such as CRBSI, might also arise with insertion of PICC line. This study highlights that the potential advantages of reduced expected cost- and labour-effectiveness of PICCs as traditionally perceived, may be inaccurate, and further awareness of complications associated with PICCs need to be considered. Clinicians should carefully take into account patient factors such as immune status, co-morbidities, and gender prior to deciding which central venous access to use.

VI. Acknowledgements

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VII. Conflict of Interest

The authors have no financial and personal relationships with other people or organizations that could inappropriately influence (bias) this submission.

VIII. Funding Source

The authors have no extra or intra-institutional funding to declare.

IX. Appendix

Table 1: Summary of complication rates in PICCs and CVCs inserted in 189 patients in operating theatre at The Canberra Hospital (between 1st June 2011 and 31st December 2011). * OR is estimated using the null hypothesis where there is 0 variable and regular OR unable to be calculated.

Graph 1: Comparison of complications rates between PICCs and CVCs.

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Developmental Anomalies of Temporal Muscle Superficial Temporal Muscle

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Abstract- The anatomy of the temporal region is complex. Also there is controversy over the structures that make up the region.

Thus than classically described anatomical structures as fascias, temporal muscle, frontal nerve, arteries, the superficial temporal muscle is present in a variable number of cases.

This muscle represents fibrous regression of named superficial temporal muscle very developed in animals with a specific masticatory action. In human has no physiological importance but its knowledge is important for plastic and maxillofacial surgeons to undertake surgeries in the region since it can generate confusion over anatomical planes and their relationship to vessels and nerves.

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Developmental Anomalies of Temporal Muscle Superficial Temporal Muscle

Guerrissi Jorge Orlando[α] & Cotroneo Gustavo[σ]

Abstract- The anatomy of the temporal region is complex. Also there is controversy over the structures that make up the region.

Thus than classically described anatomical structures as fascias, temporal muscle, frontal nerve, arteries, the superficial temporal muscle is present in a variable number of cases.

This muscle represents fibrous regression of named superficial temporal muscle very developed in animals with a specific masticatory action. In human has no physiological importance but its knowledge is important for plastic and maxillofacial surgeons to undertake surgeries in the region since it can generate confusion over anatomical planes and their relationship to vessels and nerves.

I. Introduction

The temporal region has anatomical structure of subcutaneous fascias that confuses not only the constitution of the region but also during plastic and reconstructive surgical maneuvers. Identify different fascias and its connections with numerous nerve and artery branches that cross the region is especially important for plastic surgeons.

The first fascial layer of the region is called temporoparietal fascia and it is located below the hair follicles and subcutaneous tissue of the temporoparietal region. It is considered a cephalic extension of the superfical musculoaponeurotic system described by Mitz V and Peyronie M (1974) and continues in all directions with other structures of this system (1).

Anteriorly, it is continuous with the frontalis and orbicularis oculi muscle, whereas posteriorly, it blends with the occipitalis and posterior auricular muscles. Superiorly, the fascia merges with the galea aponeurotica and inferiorly it is continuous with the superficial musculoaponeurotic system. (2) (3)

Traditionally, it has been described as a single sheet, although other authors such as Knize DM (4) and Tellioğlu AT (5) mention that this would comprise two sheets. Histological studies showed the presence of a thin muscular sheet in the outer sheet of the temporoparietal fascia below the temporal line.

This muscle corresponds to the superficial temporal muscle present in some animals but that it has been transform rudimentary in humans and only remains superficially covering the temporal region.

These muscle fibers lack functionality and constitute only anatomical finding.

A loose areolar tissue plane lies deep to the temporoparietal fascia and extends beneath the entire superficial fascia system of the scalp, including the galea aponeurotica and the frontalis and occipitalis muscle.

Deeper is the temporal fascia, which surrounds the temporal muscle. Underneath the muscle, this fascia merges with the periosteum of the temporal, frontal and parietal bone. Superiorly, the temporal fascia inserts in the superior temporal line and inferiorly it inserts in the zigmatic arch. (6). FIGURE 1.

There is no doubt that the most important anatomic element in the region is the frontal branch of the facial nerve.

The facial nerve runs almost horizontally to the parotid 2cm below the zygomatic arch, heading obliquely from back to front, from inside to outside and from top to bottom. As it leads to the periphery of the parotid gland, it becomes more superficial. Inside of the parotid gland, the division of the primary branches occurs: an upper, the temporo-facial and lower the cervical facial. (7)

When the temporo-facial branch reaches the level of the mandibular condyle, it is divided into several secondary trunks, which usually anastomose forming true plexuses. The branches that arise from the temporo-facial trunk are: 1. Frontal; 2. Temporal; 3. Eyelid branches; 4. Zigomatics and 5. Upper mouth.

Regarding the temporal region above the zygomatic arch, the frontal branch is located in the existing plane between the temporoparietal fascia and the superficial layer of the temporal fascia.

In the Cases Where the Superficial Temporal Muscle is Present, There are no Changes in the Ordinary Relationships of the Facial Nerve and Vassels Since this Rudimentary Muscle Stays in a More Superficial Plane Just Below Hair Folicules.

This paper has following objective to clarify anatomical knowledge of the temporoparietal region, principally when fibers of temporal superficial muscle are presents avoiding erroneous surgical maneuvers and potentially dangerous for both regional nerves and vessels.

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II. Material and Method

It is difficult to establish the true incidence rate of this muscle abnormality, but In 58 surgeries performed in the temporal region in the Plastic and Reconstructive Department of Cosme Argerich Hospital in Buenos Aires was evident the presence of superficial muscle fibers confirmed by direct visualization and histologic studies in 29 patients. The histological study confirmed striated skeletal muscle with hematoxilin and eosin staining. FIGURE 2 AND 3.

Twenty patients (69%) were operated of aging face by mean of superficial and submuscular lifting and other 9 (31%) underwent maxillofacial surgeries in TMJ, superior maxilla and zigomatic arch.

During undermining of temporal area, atrophic muscular fibers were found immediately below subcutaneous fat layer into temporoparietal fascia. In all cases (29 patients) muscle fibers were very thin, forming isolated groups extended on temporal area.

III. Superficial Temporal Muscle and Comparative Anatomy

Oxnard CE al. (2008) in their research note 400 human corpses, 35 of which possessed the superficial temporal muscle. These bodies possessing the superficial temporal muscle were dissected. Furthermore dissected 4 chimpanzes, 4 rhesus monkeys, colobus monkeys and other species. (8)

In monkeys and apes, the arrangement of the dissected temporal muscles at work is consistent with primate anatomy texts. A superficial fleshy head of the temporalis muscle takes origin from the skull area between the superior and inferior temporal ridges, from the ridges themselves and to a slight degree from the outer surface of the underlying deep head. Further a few aditional fibres taking origin from the internal surface of the zygomatic arch. This superficial muscle is covered by deep fascia which arises from the superior temporal ridge of the skull and passes downwards on the surface of the superficial fibres of the muscle to the coronoid process of the mandible.

The main (deep) part of the temporal muscle is below the superficial temporal muscle and arises from the periosteum covering a large part of the lateral surface of the skull below the inferior temporal ridge. This muscle gives way to a glistening silver tendon which also inserts on the coronoid process of the mandible. This muscle is covered by deep fascia which arises, as does the deep fascia lining the undersurface of the superficial head, from the inferior temporal ridge. The fact, however, that these two layers are separate implies that, at least on occasion, these two muscles are capable of contracting independently, even thought they might often act together.

In humans, the temporalis muscle is different. It arises from the cranium at and below the inferior temporal line (a thin line in humans, rather a strong ridge as in apes and most large monkeys). It is characterised by a glistening silver tendon just like that of the deep head in apes and monkeys. Underlying the human temporalis muscle is a deeper layer of deep fascia entirely similar to the deepest layer under the deep head in apes and monkeys.

Oxnard CE in his research dissected 35 cadavers in each of which a complete or partial superficial head of the temporalis muscle was present. These anomalous muscular heads extends from situations just like in apes and monkeys where the entire muscle was present, though very much thinner, to situations in which lesser portions of the muscle were found.

There were 4 cases (1%) with a superficial head entirely similar, though very much thinner, to that in apes and monkeys. There were 31 cases (8%) in which a partial superficial head was present. This muscle arises from the area comprised between the temporal lines. It has a cranial part thay may have muscle fibers or have mostly aponeurotic component. As in apes and monkeys, this muscle receives muscular fibers from the surface of the deep temporal muscle and the internal face of the zygomatic arch and directed to the coronoid process of mandible. (8) FIGURE 4.

Why the loss of this temporal muscle has occurred in humans? An obvious possibility is that changed masticatory habits and mechanics did not render such reduction or loss deleteious, whereas such changes would be inmediately eliminated in creatures with the diets of most apes and monkeys.

Furthermore, Testut, in his description of the epicranial fascia or aponeurotic galea expressed that morphologically the galea should be considered, as the muscles that attaches, as a portion of the panniculus carnosus, which originally muscular, has experienced during its development a fibrous regression. (9) (10)

IV. Discussion

The temporal region is a complex anatomical area due to its composition of multiple layers and there is a strong semantic and practical controversy over its component structures and the relationships they have with each other.

Understanding the anatomy of the area is important for the plastic and head and neck surgeons, to accurately identify different fascias that span the region and its connections with numerous nerve and artery branches that cross the region. It is essential to know the frontal branch of the temporo-facial branch of the facial nerve that extends obliquely from the zygomatic arch to reach the deepest part of the frontal muscle.

The preservation of axonal integrity is the primary care should have the plastic surgeon in the

dissection of the temporal region for aesthetic or reconstructive surgeries.

The presence of muscle fibers in superficial planes may confuse the surgeon who can work in a wrong plane and also, he can make future surgical maneuvers that may endanger any of the neural structures mentioned.

There is sufficient evidence to show the presence of a thin muscular layer or even isolated muscle fibers in the temporoparietal fascia, below the hair follicles.

This muscle corresponds to the superficial temporal muscle present in animals that has been devolving in humans, but there may be remains superficially covering the temporal region; these muscle fibers lack functionality and are only anatomical finding. FIGURE 5.

Of the different explanatory theories about the persistence of this muscle, have value two: 1) remnant of the superficial temporal muscle and 2) remaining panniculus carnosus

Animals including lower mammals, have muscles that are attached to the skin, these are called skin muscles or panniculus carnosus (11). These muscles allow the animal to mobilize certain areas of the skin, apparently as a protective measure to ward located noxas agents, such as insects. In human limbs have evolved so much that can reach any part of the body. For this reason, the panniculus carnosus became obsolete and has devolved. But remnants of the it can be found in some individuals. Some muscles may contain remnants of the panniculus carnosus as the pectoralis major, trapezius, serratus, pyramidalis, palmaris longus and some craniofacial muscles.

V. Conclusion

It is essential the knowledge of the complex anatomy of the temporal region for the surgeon that undertake any surgery in the region. Fibers of the superficial temporal muscle can be usually finding; though they have no functional or physiological significance but surgical importance.

From another point of view, the presence of this muscle must be known by maxillofacial surgeons when they perform surgeries on the region in case of both superior mandible or TMJ approaches.

For the plastic surgeon also it is important to know the existence of the superficial temporal muscle and that may become apparent during the regional dissection in the treatment of periorbital aging or any other variety of rhytidectomies confusing the surgeon about the exact location of the anatomical planes and their relation to nerve and vascular structures.

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Comparison of Laparoscopic and Open High Ligation Procedure for Varicocele

By Rohit Maheshwari, Rajendra Mandia, Puneet Malik, Kulbhushan Haldeniya & Neelamraju Lakshmi Harish

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Abstract- Varicocele is an important cause of infertility which can be corrected by surgery. We aim to assess and compare efficacy of laparoscopic and open palomo`s technique for varicocele. A total of 70 patients were taken in our study to assess the efficacy of treatment. Open high ligation was done on 36 patients and laparoscopic high ligation was done on 34 patients. The hospital stay was more in patients of open group than of laparoscopic group. Also, patients of laparoscopic group returned to normal activities earlier than with open group. Recurrence rates were 0% and 5.6%, post-operative hydrocele occurrence was 2.9% and 8.3%, wound complication was 0% and 5.5%, scrotal edema was 2.9% and 8.3%, and orchitis was 0% and 2.8% in laparoscopic and open group respectively. Also, post-operative pain was more in open group. There was improvement in seminal analysis in patients of both groups.

Keywords: varicocele, laparoscopic, high ligation, infertility.

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Comparison of Laparoscopic and Open High Ligation Procedure for Varicocele

Rohit Maheshwari [α], Rajendra Mandia [σ], Puneet Malik [ρ], Kulbhushan Haldeniya [ω] & Neelamraju Lakshmi Harish [¥]

Abstract- Varicocele is an important cause of infertility which can be corrected by surgery. We aim to assess and compare efficacy of laparoscopic and open palomo`s technique for varicocele. A total of 70 patients were taken in our study to assess the efficacy of treatment. Open high ligation was done on 36 patients and laparoscopic high ligation was done on 34 patients. The hospital stay was more in patients of open group than of laparoscopic group. Also, patients of laparoscopic group returned to normal activities earlier than with open group. Recurrence rates were 0% and 5.6%, post-operative hydrocele occurrence was 2.9% and 8.3%, wound complication was 0% and 5.5%, scrotal edema was 2.9% and 8.3%, and orchitis was 0% and 2.8% in laparoscopic and open group respectively. Also, post-operative pain was more in open group. There was improvement in seminal analysis in patients of both groups. As compared to open high ligation, laparoscopic high ligation for varicocele has less post-operative morbidity, shorter convalescence and early return to normal activities.

Keywords: varicocele, laparoscopic, high ligation, infertility.

I. Introduction

Varicocele is dilation of the internal spermatic veins and pampiniform plexus that drain the testis.[1] The incidence is 10-20% and 35-40% in general population and infertile males respectively.[2] It causes heaviness in scrotum, difference in scrotal size, visible veins or testicular pain rarely. 90% of varicoceles are on left side, while approximately 10% are bilateral. A right sided varicocele alone is rare. Varicoceles appear to be more common in males who are tall and heavy, although associated with lower BMI than age matched controls.[3],[4],[5] There is increased incidence of varicocele in 1st degree relatives, particularly brothers of affected males, suggesting a potential genetic basis. Surgery is recommended treatment of choice for varicocele; used methods include open surgical approaches like retroperitoneal (Palomo), Inguinal (Ivanissevich) and subinguinal. Recently, percutaneous embolization and laparoscopic high ligation are also introduced. It has been suggested that laparoscopic high ligation for varicocele has the potential advantages of reduced morbidity, reduced analgesic requirements and a more rapid rate of return to work compared with the standard open surgical approach.[6],[7] Our study compares laparoscopic and open high ligation technique for varicocele treatment.

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II. Experimental Section

a) Patients and Methods

Our study included 70 patients divided randomly into laparoscopic group and open group. All the surgeries were done in S.M.S Hospital from 2012-2014. The study was approved by ethics committee and written consent was taken from all patients prior to entry into the study. Mean age in laparoscopic group was 26.91 years ranging from 15-50 years and in open group was 26.61 years ranging from 16-49 years.

Diagnosis was done mainly by clinical examination and was confirmed by Duplex scan.

Varicocele was graded according to Dubin and Amelar.[1]

- Grade I (small): varicocele palpable only with Valsalva's manoeuvre.
- Grade II (moderate): varicocele palpable without Valsalva's manoeuvre.
- Grade III (large): varicocele visible through the scrotal skin.
- Sub-clinical: varicocele detected only by Doppler ultrasound.

Along with all routine investigations, semen analysis was performed for each patient preoperatively.

b) Operative Technique

i. *Laparoscopic High Ligation:* This surgery was done in general anesthesia. Laparoscopy was performed with 10 mm port placed at umbilicus for video endoscopy and other two 5 mm ports, one above pubic symphysis and other in right/left iliac fossa according to laterality of varicocele. The parietal peritoneum overlying enlarged testicular vessels was divided in order to make wide window. Testicular veins were mobilized, grasped and divided in middle preserving testicular artery.

ii. *Open High Ligation:* This surgery was performed in general/spinal anesthesia by making horizontal incision medial and inferior to the ipsilateral anterior superior iliac spine and extending medially. The external oblique fascia was incised

in the direction of the fibers and the internal oblique muscle retracted cranially to expose the internal spermatic veins proximal to the internal inguinal ring. Testicular veins were ligated with silk ties and divided.

The outcome after surgery was assessed by examination of scrotum for complications like persistence, hematoma, hydrocele, wound infection, orchitis and recurrence in the period of follow up. Improvement in semen parameters was assessed by repeating semen analysis after 3 months postoperatively.

Analgesic requirements were determined by the number of analgesic injections required in postoperative period. The hospital stay was derived by the mean number of days till the patient is fit for discharge postoperatively. The operative time was derived by the number of minutes from time of incision given until all wounds/ports are closed. Patients were followed for a minimum of 3 months; weekly for the first month and monthly for the next 2 months.

All the data was compiled on Microsoft excel computer program and were calculated to compare various parameters of the laparoscopic and open high ligation surgeries for varicocele. Chi-square and Student t-test were applied to find level of significance. When $p < 0.05$ was found, results were considered statistically significant.

III. Results

Out of 34 patients in laparoscopic group; 30 had left sided and 4 had bilateral varicoceles. Out of 36 patients in open group; 31 had left sided and 5 had bilateral varicoceles.

In laparoscopic group; 5 patients had grade 1, 22 patients had grade 2 and 7 patients had grade 3 varicocele. In open group; 4 patients had grade 1, 22 patients had grade 2 and 10 patients had grade 3 varicocele.

In laparoscopic group; mean operative time for doing unilateral surgery was 30.17 minutes and for bilateral surgery was 51.75 minutes. In open group; mean operative time for doing unilateral surgery was 30.74 minutes and for bilateral surgery was 53.2 minutes (Table 1).

Injection diclofenac was given to patients in both the groups only when patients complained of pain. In our study, the average number of analgesic injections required was less in laparoscopic group.

No major intraoperative surgical complications occurred in our study. In laparoscopic group; 1 (2.9%) patient developed scrotal edema and 1 (2.9%) patient developed hydrocele. In open group; 1 (2.8%) patient developed orchitis, 2 (5.5%) patients developed wound seroma, 2 (5.5%) patients developed wound infection, 3 (8.3%) patients developed scrotal edema, 3 (8.3%) patients developed hydrocele and 2 (5.6%) had recurrence (Table 2).

Mean duration of post-operative hospital stay was 1.12 and 1.97 days in laparoscopic and open group respectively. (Table 3).

Mean duration of return to normal activities was 4.68 and 6.81 days in laparoscopic and open group respectively. (Table 4).

Table 1 : Mean Operative Time in Minutes

Mean Operative Time	Lap (n=30)	Open (n=31)	P-Value
Unilateral Surgery	30.17	30.74	0.64
Bilateral Surgery	51.75	53.20	0.58

Table 2 : Post-operative analgesic requirement and complications

Post-operative Pain	Lap (n=34)		Open (n=36)		P-Value
	Patients	%	Patients	%	
No analgesic injection	5	14.7	0	0.0	3.74E-09
1 injection	24	70.6	4	11.1	
2 injection	5	14.7	12	33.3	
3 or more injections	0	0.0	20	55.6	
Orchitis	0	0.0	1	2.8	0.33
Wound Infection	0	0.0	2	5.5	0.17
Wound Seroma	0	0.0	2	5.5	0.17

Scrotal Edema	1	2.9	3	8.3	0.34
Hydrocele	1	2.9	3	8.3	0.34
Recurrence	0	0.0	2	5.6	0.17

Table 3 : Duration of post-operative hospital stay in Days

Post-operative Hospital Stay	Lap (n=34)	Open (n=36)	P-Value
Mean	1.12	1.97	5.75E-07
Range	1-3	1-4	-

Table 4 : Duration of return to normal activities

Return to Normal Activities	Lap (n=34)	Open (n=36)	P-Value
Mean	4.68	6.81	5.43E-10
Range	4-7	4-10	-

Semen analysis was done in all patients pre and 3 months post operatively. Improvements were seen in both groups. (Table 5).

Table 5 : Semen characteristics per group

Semen Characteristic		Before Treatment	After Treatment	P-Value
Lap (n=34)	Sperm Count	70.18	75.79	2.2E-4
	Sperm Motility	60.03	65.70	2.7E-12
	Sperm Morphology	61.42	66.07	2.1E-12
Open (n=36)	Sperm Count	69.64	75.67	1.2E-4
	Sperm Motility	59.86	65.64	1.8E-12
	Sperm Morphology	60.53	66.42	1.6E-12

IV. Discussion

The indication of surgery was presence of varicocele whether symptomatic or asymptomatic as early correction of varicocele prevents future infertility.

Mean age of presentation in laparoscopic group (26.91 years) was slightly higher than in open group (26.61 years). In our study, varicocele was seen in the third decade in most of the patients. This age matched with other studies, but is contrary to studies in the developed world where varicocele is diagnosed and treated at a younger age group. [8]

In terms of laterality of varicocele, 30 (88.24%) out of 34 patients of laparoscopic group and 31 (86.11%) out of 36 patients of open group had left varicocele. This observation matched with other reports that a right sided varicocele is very rare and bilateral varicocele has incidence of 2.5-65%.[9]

In laparoscopic group; operative time for doing unilateral surgery ranged from 24 to 48 minutes. Mean time taken was 30.17 minutes. In open group; operative time for doing unilateral surgery ranged from 24 to 50 minutes. Mean time taken was 30.74 minutes. So mean time taken for open surgery was slightly more than laparoscopic group but these results were not significant as p=0.64. In laparoscopic group; operative time taken for bilateral high ligation ranged from 48 to 55 minutes. Mean time taken was 51.75 minutes. In open group; operative time taken for bilateral high ligation ranged from 50 to 60 minutes. Mean time taken was 53.20 minutes. So mean time taken for open surgery was slightly more than laparoscopic group but these results are not significant as p=0.58. In contradiction to our study mean operative time in a report by Poulsen et al. [10], was 35 and 45 minutes.

Injection diclofenac was given to patients only when patients complained of pain. In our study, the average total number of analgesic injections required postoperatively was significantly higher (p=3.74 * 10-9) in the open group as compared to the laparoscopic group. This finding was in agreement with the study by Lynch, Badenoch and McAnena (1993) [11]

Wound seroma occurred more commonly in open group (2 patients; 5.5%) and was not noted in laparoscopic group. This result was not statistically

significant as p=0.17. Wound infections were noted in 2 patients (5.5%) of open group and were not seen in laparoscopic group. This result was not statistically significant as p=0.17. Orchitis was noted in 1 patient (2.8%) in open group and none in laparoscopic group but this was not statistically significant as p=0.33. Scrotal edema was noted in 3 patients (8.3%) in open group and 1 patient (2.9%) in laparoscopic group. But this difference was not statistically significant as p=0.34. Hydrocele was noted in 3 patients (8.3%) in open group and 1 patient (2.9%) in laparoscopic group. But this difference was not statistically significant as p=0.35. This finding was in agreement with other studies which also show that the laparoscopic approach is associated with less chances of hydrocele because of better visualization of cord structures.[12] Recurrence was noted in 2 patients (5.6%) in open group and none in laparoscopic group but this result was not statistically significant as p=0.17.

In laparoscopic group; duration of post-operative stay ranged from 1 day to 3 days and mean stay was 1.12 days. One patient stayed for 3 days due to his postoperative pain but no specific cause of pain was found and was treated by analgesics. In open group; duration of post-operative stay ranged from 1 day to 4 days and mean stay was 1.97 days. Two patients stayed for 4 days due to wound infections which were treated with antibiotics and dressings. This difference in our study was statistically significant as p=5.75 * 10-7. Several studies have suggested that laparoscopic varicocelectomy has the advantage of a shorter hospital stay. This finding is in agreement with reports by Pouslen et al. and Lynch, Badenoch and McAnena (1993). [11]

In laparoscopic group; duration of return to normal activities ranged from 4 days to 7 days and mean was 4.68 days. In open group; duration of return to normal activities ranged from 4 days to 10 days and mean was 6.81 days. So patients in laparoscopic group returned to their normal activities earlier than open group patients and this result was statistically significant as p=5.43 * 10-10.

Semen characteristics improved significantly after treatment in both groups of patients. It is accepted that varicocelectomy improves semen parameters in patients with varicocele, with a 60-80% recovery rate. Schlesinger, Wilets and Nagler (1994) reviewed 16 studies that assessed the effect of varicocelectomy on sperm density and reported that postoperatively significant improvements were demonstrated in 12 studies. [13] They also reported that sperm motility improved after varicocelectomy in 5 out of 12 studies.

V. Conclusion

Laparoscopic high ligation of varicocele is a minimal invasive technique that is easily performed. The clear visualization and magnification provide control of the affected vessels thus decreasing post-operative recurrence. Compared to open surgery, laparoscopic high ligation has shorter convalescence, early return to normal activities and less post-operative morbidity. Thus, we recommend that laparoscopic technique for varicocele ligation to replace open method.

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Gallbladder Volvulus: A Case Report and Review

By Mounzer Dgheem & Charles Mouliade
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Abstract- Gallbladder volvulus is an unusual cause of acute abdomen. After the first case published by Wendel, about 500 cases have been documented in the medical literature.This condition is defined as torsion of the gallbladder around its artery and duct in case of long and flask mesentery. The one presented here is a case of a 85 year-old woman who complained of right subcostal pain since 48 hours without fever. The echography revealed a large thick-walled gallbladder with a common bile duct diameter of 10mm without stones. Laparotomy through a right subcostal incision revealed a serohemorrhagic exudate with complete torsion of the gallbladder which was ischemic and gangrenous without perforation. Cholecysectomy was performed with a cholangiography which was normal. The anatomopathologic examination confirmed the diagnosis of acute gangrenous cholecystitis. Gallbladder volvulus is a non-frequent cause of acute cholecystitis.

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Mounzer Dgheem [α] & Charles Mouliade [σ]

Abstract- Gallbladder volvulus is an unusual cause of acute abdomen. After the first case published by Wendel, about 500 cases have been documented in the medical literature.This condition is defined as torsion of the gallbladder around its artery and duct in case of long and flask mesentery.The one presented here is a case of a 85 year-old woman who complained of right subcostal pain since 48 hours without fever.The echography revealed a large thick-walled gallbladder with a common bile duct diameter of 10mm without stones. Laparotomy through a right subcostal incision revealed a sero-hemorrhagic exudate with complete torsion of the gallbladder which was ischemic and gangrenous without perforation. Cholecystectomy was performed with a cholangiography which was normal. The anatomopathologic examination confirmed the diagnosis of acute gangrenous cholecystitis. Gallbladder volvulus is a non-frequent cause of acute cholecystitis.

I. Case Report

A 85 year-old woman was admitted for a right upper abdominal pain, nausea, vomiting without fever since 48 hours.She had an insulin-dependent diabetes with no history of previous abdominal surgery or trauma, laboratory analysis revealed hyperleucocytosis with normal liver function tests. The echography revealed thick-walled gallbladder without cholelithiasis and a common bile duct dilatation of 10 mm. Right upper quadrant tenderness and positive Murphy's sign were detected on physical examination. On surgical exploration through a right subcostal incision, there was a 100 ml of sero-hemorrhagic exudate with complete torsion of the gallbladder along the axis of the cystic duct (figure1), gallbladder detortion is performed, the cystic duct was so long which measured 6 cm, it is cut at a distance of 1 cm of the common bile duct, introperative-cholangiography was normal (figure2), standard open choecystectomy was performed. Bile culture was positive for Echerchia Coli, therefore; antibiotheraby was adapted. Her postoperative course was uneventful, and she was discharged on the3rd postoperative day.

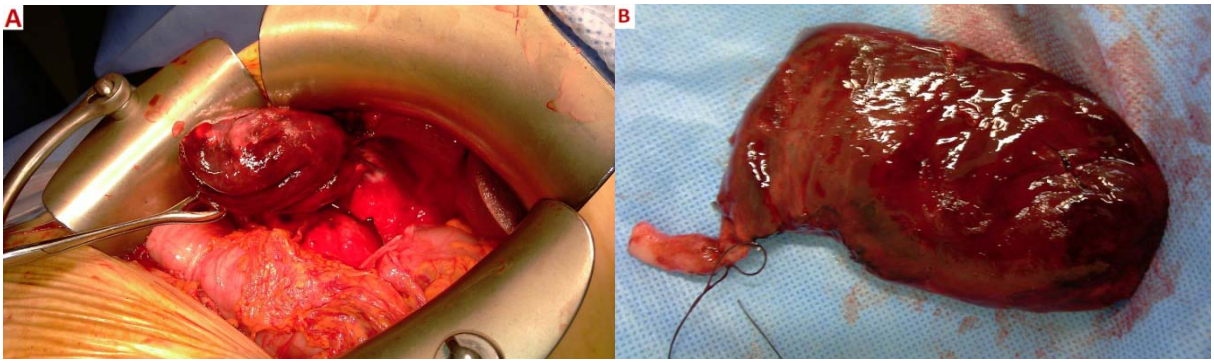

Figure 1 : A)intraoperative view of gallbladder torsion, B) specimen (gallbladder)after resection

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Figure 2 : Intraoperative cholangiography shows the long cystic duct with no stones in common bile duct

II. Discussion

Gallbladder volvulus is defined as torsion of the gallbladder around its artery and duct in case of a long and flask mesentery(1). After the first case published by Wendel in 1898(2), about 500 cases have been documented in the medical literature in 2 to 100 year-old patients (3,4). Gallbladder torsion occurs most often in elderly patients (5,6,7), but several cases were reported in children(8,9). The one presented here was a surprise intraoperative diagnosis because of the presumed acalculous cholecystitis in our diabetic patient, gallbladder volvulus commonly presents as acute cholecystitis and is rarely diagnosed preoperatively. This condition should be always suspected when making the differential diagnosis of acute cholecystitis in elderly patients especially in women. Magnetic resonance cholangiopancreatography (MRCP) is very useful in making preoperative definitive diagnosis of gallbladder torsion(10). Gallbladder torsion was reported in pregnancy(11). Gallbladder volvulus should be thought in case of acute cholecystitis that does not improve after suitable medical treatment. Delayed diagnosis can lead to dangerous complication such as necrosis and perforation of the gallbladder with a generalized peritonitis,consequently;mortality is increased especially in elderly patients who have often other comorbidities(5). laparoscopic detorsion and removal of gallbladder is the treatment of choice for gallbladder volvulus (4,12).

III. Conclusion

Gallbladder volvulus is a rare cause of acute abdomen which is rarely diagnosed before surgery. It should be added to the differential diagnosis of acute cholecystitis that does not improve after medical treatment especially in elderly women. Early diagnosis and urgent cholecystectomy in necessary for optimal prognosis.

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Preliminary Seton Before Fistulectomy: A Single Institute Experience in Treating Fistula in Ano; 1 Year Follow up Results

By Labib Al-Ozaibi, Wessam Hazim, Ali Al-Ani, Alya Al-Mazrouei, Faisal Al-Badri & Ahmed Al-Jaziri

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Abstract- *Aim:* To analyze the results of treating fistula-in-ano using a preliminary Seton followed by fistulectomy and sphincter repair 2-4 months later.

Method: This is a retrospective study of 56 patients with transsphincteric and complex anal fistulas, managed preliminary with loose Seton followed by fistulectomy and sphincter repair 2-4 months later between March 2011 and March 2013. Patients were seen at the clinic 1 week, 3 months and 1 year after the surgery. Patients were observed for complications and recurrence and incontinence was noted according to Cleveland Clinic score.

Result: Twenty-five (45%) of the fistulas were high or complex. Twenty-nine (51.7%) of the patients had a history of previous surgery. Forty-nine (88%) of the cases were done as a day case surgeries.The Seton was kept in situ for 2-5 months (average 2.6 months).

Keywords: *anal fistula; seton; fistulectomy.*

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Preliminary Seton Before Fistulectomy: A Single Institute Experience in Treating Fistula in Ano; 1 Year Follow up Results

Labib Al-Ozaibi [α], Wessam Hazim [σ], Ali Al-Ani [ρ], Alya Al-Mazrouei [ω], Faisal Al-Badri [¥] & Ahmed Al-Jaziri [§]

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Conclusion: Preliminary Seton followed by fistulectomy and sphincteroplasty has shown to be highly effective in treating transsphincteric and complex fistulas with low recurrence rates (2/56=3.6%) and no risk of subsequent incontinence.

Keywords: anal fistula; seton; fistulectomy.

I. Introduction

The aim of surgical treatment of anal fistulas is to cure the disease by preventing recurrence while ensuring that faecal continence is maintained. Normally, a 'lay-open' fistulotomy or fistulectomy technique is used for inter-sphincteric or low trans-sphincteric fistulas, but high trans-sphincteric or supra-sphincteric fistulas would require division of a large portion of the external sphincter, thereby increasing the chance of faecal incontinence. Many procedures have been described. Current management remains dependent on surgeon preference between options like fistulotomy, fistulectomy, loose or cutting Seton insertion, advancement flaps, fibrin glue or anal plugs with variable results.

The use of Seton in the treatment of anal fistulas has been ongoing for centuries. One of the earliest papers written by Hippocrates in 400 BC described fistulotomy as well as the use of a cutting Seton made of horse hair wrapped with lint threads[1].

The Seton works by several mechanisms. Firstly, it helps to identify and mark the fistulous tract. Secondly, it promotes fibrosis in the surrounding tissue. Thirdly, it encourages drainage and prevents formation of new abscesses. And finally it decreases the risk of incontinence as scarring prevents retraction of the sphincter.

Seton can be used for long term palliation to avoid septic and painful exacerbations by establishing effective drainage; most often in patients with Crohn's disease[2] or it can be used as part of a staged fistulectomy before use of advanced techniques (fistulectomy, advancement flap). Such strategy protects against the consequences of cutting the sphincter. The goal of this study is to report our experience in treating anal fistulas using the preliminary Seton technique before fistulectomy and compare the safety and efficacy of reduction of incontinence and recurrence in this method as compared to other methods in the literature.

II. Method

Data collected from the records of 56 patients who underwent preliminary Seton placement followed 2-4 months later by fistulectomy and sphincter repair during the period of March 2011 — March 2013. Fistulae were characterized using Parks' classification. Perianal fistulas were defined as complex if they had multiple external openings, high fistulas if the internal opening which was at the level of the dentate line and low fistulas if the internal opening was below the dentate line. Patients with concomitant anal pathology and patients with inflammatory bowel disease were excluded from the study.

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The entire procedure was performed under general anaesthesia with the patient in the lithotomy position. After initial evaluation, the external and internal openings were located using a probe and air injection along the track. A loose Seton using 2 braided, non-absorbable sutures (4/0 prolene) was looped around the fistula tract, (Figure 1). It was not tightened at any time during the follow-up and was not removed.

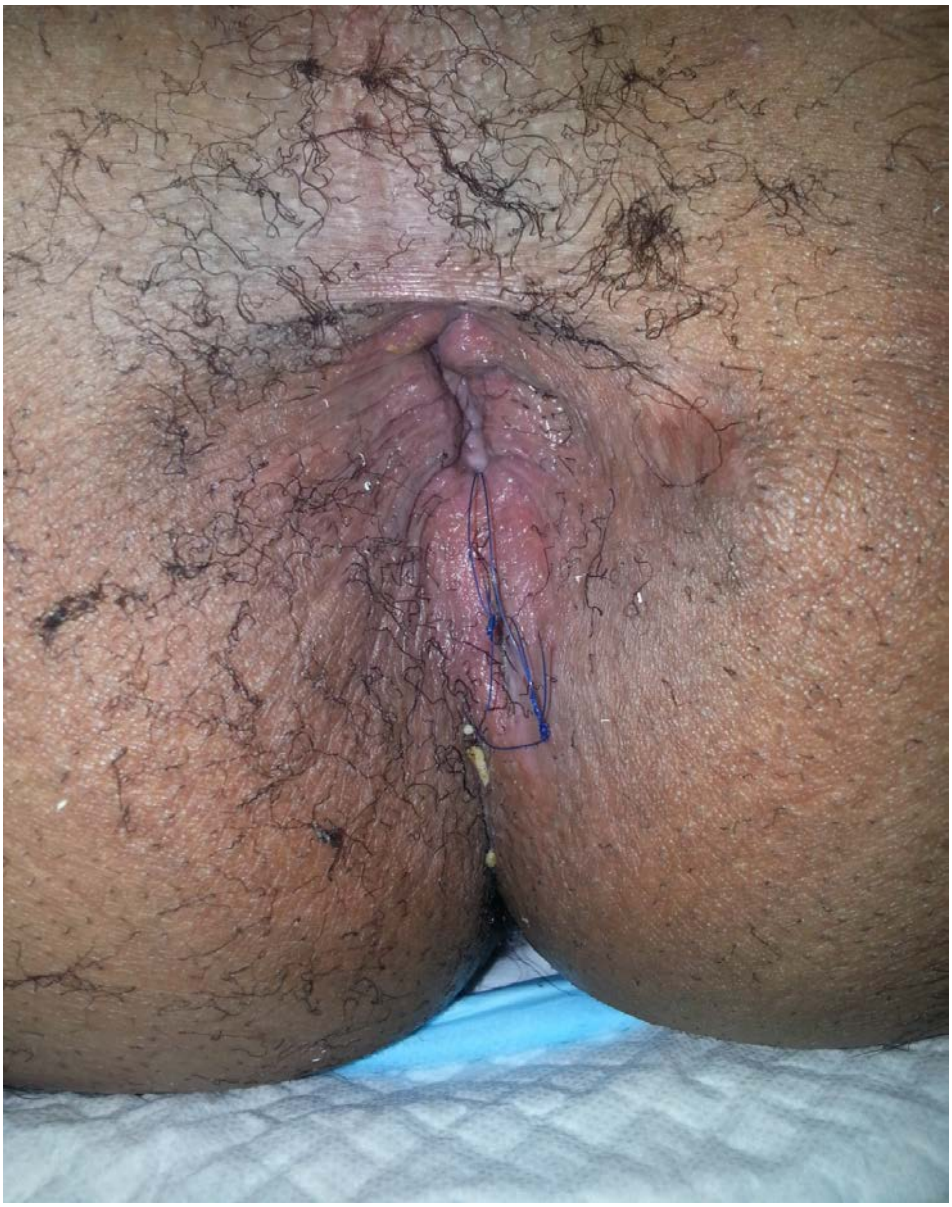

Figure 1 : Seton in situ

2-4months later the fistula was completely excised with immediate repair of the sphincters and the wound kept open,(Figure 2a, b).

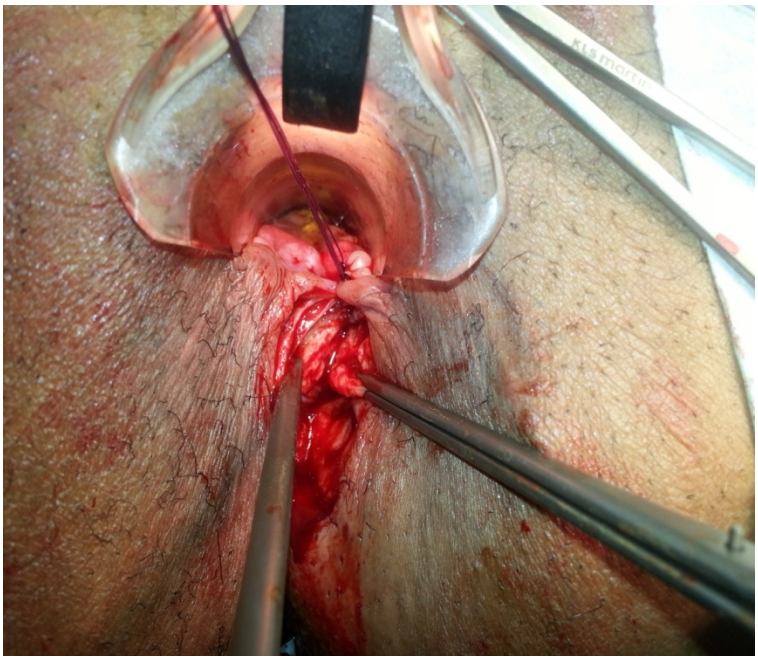

Figure 2a : After fistulectomy showing the sphincters before repair

Figure 2b : After the sphincter repair

During a follow-up period of 12-36 months details of healing (i.e. no signs of discharge), recurrence, and complications were gathered. Patients were followed up at the clinic after 1 week, 3 months and after 1 year. Continence was evaluated according to Cleveland Clinic score[3]. The excised fistulas were sent for histopathology to rule out inflammatory bowel disease or cancer.

The data were analyzed using IBM SPSS STATISTICS BASE 21.

III. Results

After obtaining the ethical committee approval, the record of 56 patients with transsphincteric and complex anal fistula who were managed with preliminary loose Seton followed by fistulectomy and sphincteroplasty were reviewed.Fifty-four (96.4%) of the patients were men and Two (3.6%) were women. The overall mean age was 39.5 (range 25-61).The types of fistulas are depicted in Table 1.

Table 1 : Type of fistulas

Type of Fistula	Number	Percent
Low transsphincteric	31	55
High transsphincteric	9	16
Complex	16	29
Total	56	100

Twenty-nine (52%) of the patients gave history of previous surgery, 25(45%) had incision & drainage of perianal abscesses and four (7%) had previous fistula surgery. The entire procedure was done under general anaesthesia. Preliminary Seton insertion was done as a day case surgery. The Seton was kept in situ for a period of 2-5 months (average 2.6M). The second procedure was fistulectomy and sphincter repair for which49 (88%) were done as a day case surgeries.

The mean follow up was 20.5 months (12-36 months). Six (10.7%) patients experienced post-operative pain which required analgesia while three (5.3%) developed bleeding; requiring surgery in one patient and only pressure dressing in the other two. The complete wound healing time (i.e. no more need for wound dressing) was between 2-8 weeks (mean 3.7 weeks).

While two patients (3.6%) reported a transient incontinence of gas in the immediate postoperative period (score 3 and 4, respectively according to the Cleveland Incontinence Score), which lasted for 3 months there was no incontinence in any of the patients in the longer follow up. The fistulas were completely cured in 54(96.4%) of patients. Recurrence occurred in two patients (3.6%); one was re-operated again for which the same procedure was repeated again -loose Seton for 4 months followed by fistulectomy and sphincter repair- and during the follow up he didn't show any signs of recurrence while the other patient did not attend the follow up; he was contacted by phone and reported that he had been re-operated on in another hospital but six months later he had recurrence.

IV. Discussion

Surgical treatment of fistula-in-ano is associated with the risk of incontinence and recurrence. Several operative techniques were established to reduce these complications but till today none has been shown to be 100% successful. Post-operative anal incontinence after fistulotomy has been reported to be 20.3%[4]. Arroyo A et al[5], who combined fistulotomy with sphincter reconstruction concluded that continence were improved in incontinent patients and were not jeopardized in continent ones. The patients who reported postoperative incontinence in his study were 16.6%. Several risk factors are associated with the postoperative incontinence, including recurrent or complex fistulas, multiple previous drainages[6], and type of operative procedure[7].

In a prospective audit,Sileri P et al[8] demonstrated that a high number of complex anal fistulae has been treated by seton placement and a good outcome was achieved in the majority of patients. The selection of Seton type and technique depends on surgeon preference. Gokulakkrishna Subhaset al[9] described all the available variations in materials and techniques for seton treatment.

The use of loose Seton alone in the treatment of complex anal fistulas has been reported in several studies with variable results. Some patients were cured by this technique but the success rate tumbled over time. This approach avoids the risk of incontinence complications that may arise due to division of the external sphincter but many patients develop further sepsis that usually requires surgery[10].

The use of Seton drainage before definitive surgery has been used in an attempt to decrease the risk of incontinence and recurrence. Several reports have found Seton to be safe, with low incidence of recurrence and incontinence. Different surgeons use the Seton in different ways. Russell K et al[11], performed staged fistulotomy using a Seton. They applied the Seton around the distal half of the intact external sphincter after dividing the cephaled portion of the tract; followed 6-8 weeks later by dividing of the remaining external sphincter, and a recurrence rate of 3% was noted. Kennedy and Zegarra[12] did the same first stage fistulotomy and Seton placement but in the second stage the Seton was removed rather than performing the second stage division of muscles. It minimized the risk of incontinence and primary healing occurred in 78%. Fung AK et al[13] also used the technique of laying open the subcutaneous tract and insertion of loose seton for the part of the tract related to the sphincter complex which was removed after a median length of 7 months

with a recurrence rate of 19%. In the study by Ratto C et al[14], he used Seton drainage in 40.3% of the patients followed later by fistulotomy and end to end primary sphincteroplasty. There was no significant change in the fecal incontinence score and the fistula recurrence was observed in 3 out of 72 patients (4.3%). Pearl RK et al[15] reported that a staged fistulotomy using a Seton is a safe and effective method of treating high or complicated anorectal fistulas with major incontinence of 5% and a recurrence rate of 3%.

An alternative technique for treating complex, high transsphincteric anal fistulas using the Seton was reported in the studies of Subhas G et al[16] and GalisRozen et al[17]. Patients were asked to rotate the Seton daily, one revolution in each direction, pulling the knot through the fistula tract. The progressive migration technique resulted in the gradual healing and eradication of the fistula tract in 75% of patients, with no recurrence (Setons completely worked their way to the surface, or tract migration was extensive enough to allow a safe completion fistulotomy).

Loose Seton is preferable to the cutting Seton; the later procedure yields fairly good results in regards to curing the fistula but it's painful, may result in pressure necrosis of the full thickness of the sphincter muscle resulting in sepsis and increases rate of anal incontinence[18].

V. Conclusion

Preliminary Seton followed by fistulectomy and immediate sphincter repair has shown to be highly effective in treating transsphincteric and complex fistulas with low recurrence rate (2/56=3.6%) and no risk of subsequent incontinence in the population we studied.

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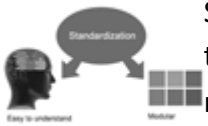

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Note :

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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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1. General,

2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

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Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of 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 the 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 evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

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

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

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 approach 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. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than 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 maintain the initial two items to no more than one ruling each.

- Reason of the study - 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 quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness 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 to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled 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 with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose 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 sound written Procedures segment allows a capable scientist to replacement 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 for the least amount of information that would permit another capable scientist to spare 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 object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text 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:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not 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 - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in 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 a 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. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise 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 in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to 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 part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a 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 implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly 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 with prospect, and let it drop at that.

- Make a decision if each premise is supported, 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 the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One 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 available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

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- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.

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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
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

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