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Surgeries and Cardiovascular System

Small Bowel Obstruction

Acute Acalculous Cholecystitis

Highlights

Cardiac Cavernous Hemangioma

Metabolic Syndrome in Bangladeshi

Discovering Thoughts, Inventing Future

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Acute Acalculous Cholecystitis and Small Bowel Obstruction: A Case Report and a Review of the Literature

By Dr. Shanesh Kumar & Dr. Asiri Arachchi

Eastern Health, Australia

Abstract- We present a case of a 73-year-old male presenting with abdominal pain.

He presented with what was suggestive of a small bowel obstruction secondary to an incarcerated inguinal hernia. Subsequent investigation after operative management of the hernia denoted that it was all secondary to acalculous cholecystitis; we thus present our case and pitfalls in management.

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I. Case Report

73-year-old male presented with a four day history of abdominal pain, he had been doing heavy lifting for some time. Of note his significant medical history includes: peptic ulcer disease and a current smoker.

On review in the emergency department he was unwell with signs of sepsis. He was febrile, and guarding to examine in all quadrants particularly in the right side; Murphy's sign however was negative.

Initial investigations denoted a raised white cell count of 17 x 10^9 and CRP of 195mg/L. Abdominal Computed Tomography (CT) and erect chest x-ray revealed dilated loops of small bowel with multiple air/fluid levels (see image 1 below). Given the investigations denoting likely a small bowel obstruction secondary to an incarcerated hernia and the general decline in the patient operative management was sought.

Intraoperatively, it was revealed the femoral hernia only contained fat which was subsequently repaired. An indirect inguinal hernia was also identified, with the cord containing a lipoma. This was subsequently ligated and dissected.

Given non-progress to improvement post operatively the patient had further investigations, which incorporated an ultrasound initially and CT Cholangiogram which denoted acute acalculous cholecystitis (AAC) (see image 2). He also had a dilated biliary system however with normal liver function. As further sepsis continued and gram negative bacteraemia on blood cultures an emergency open cholecystectomy was conducted.

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Intraoperatively the cystic stump was controlled with closure with PDS suture and double clip with clip applicator, however the patient developed a post-operative biliary leak despite these measures.He was later transferred to a tertiary centre for endoscopic retrograde cholangiopancreatography (ERCP) and further stenting. The patient made a successful recovery.

II. Discussion and Literature Review

AAC is defined as an necroinflammatory disease of the gallbladder with a multifactorial pathogenesis.[1-3] We are not aware of any reported incidences of small bowel obstruction secondary to AAC.

AAC has been recognised for more than 150 years, despite this it remains an elusive diagnosis. Clinically, AAC is indistinguishable from acute calculous cholecysitis.[2, 4-6]This is likely because of the complex clinical setting in which this entity develops.[2] Acalculous cholecystitis is typically seen in patients who are hospitalized and critically ill, though it may also be seen in the outpatient setting.[3] Patients may also present with the complications of AAC including gall bladder necrosis and sepsis. It accounts for approximately 10% of all cases of acute cholecystitis and is associated with morbidity and mortality (10-90%).[2, 3]AAC occurs in about 0.2% to 0.4% of all critically ill patients usually about 60 years of age.[2, 4, 6, 7] There are multiple risk factors for developing AAC and these are listed in Table 1.[1-4]

Laboratory tests in patients with AAC are nonspecific[3]. The ultimate diagnosis of AAC usually rests on imaging.[2]

Ultrasonography (US) is usually the first test obtained in patients suspected of having acalculous cholecystitis.It has good sensitivity (100%) and specificity (90%) for diagnosing acalculous cholecystitis.[2, 3]Thickening of the gallbladder wall is the most reliable diagnostic feature.[3, 6]

CT is useful for the diagnosis of AAC.[2] The accuracy of CT scanning appears to be similar to that seen with ultrasonography.[3]

Cholescintigraphy can be useful in patients who are stable thatcan cope with the transport and in whom the diagnosis is unclear after US [3]. The sensitivity of

cholescintigraphy can be as low as 67% to 100%.[2, 3] The specificity ranges from 38% to 100%.[2]

However, cholescintigraphy takes hours to perform, so it is not recommended in critically ill patients in whom a delay in therapy can be potentially fatal.[2, 3]

Initial management of AAC includes empiric antibiotics targeting gram-negative and anaerobic pathogens after blood cultures have been taken.[3, 8]

Cholecystectomy is considered to be definitive therapy for AAC.[1-4, 9, 10] However, cholecystostomy can also be used as first line therapy, but there is debate whether this is appropriate.[2, 3, 9, 10]

Cholecystostomy may provide time to optimise the patient's condition for surgery.[2, 9, 11, 12] Failure to improve by cholecystostomy (defined by persistent fevers, signs of sepsis, or evidence of new multiorgan dysfunction) may be due to gangrenous cholecystitis, catheter dislodgement, bile leakage resulting in peritonitis, or an incorrect diagnosis of acalculous cholecystitis.[3] These patient's require will require cholecystectomy.[3]

However, if the gallbladder wall is ischaemic, necrotic, or perforated, cholecystostomy is not appropriate.[2, 3, 9]

When neither cholecystostomy nor cholecystectomy can be performed, direct endoscopic retrograde cholangiopancreatographic gall bladder drainage can be attempted to assist decompression. There have been isolated cases of success [3]. However, this generally is believed to be inferior therapy and seldom is performed.[2, 4, 13, 14]

Acalculous cholecystitis is difficult to diagnose, but an early correct assessment is essential to successful treatment as AAC.[2, 3]

Our case highlighted challenging goals, initially with small bowel obstruction presenting with likely secondary to an incarcerated hernia.

However further description and management noted this was all secondary to asmall bowel obstruction caused by possibly an inflamed gall bladder.In terms of clinical suspicion, possibly having done an ultrasound prior to laparotomy may have changed treatment methods, however this diagnostic dilemma exists. Our patient did not have a gallstone ileus, and given the multifactorial problems encountered it was a challenge.

Clinical suspicion of other pathologies should always be in a clinician's mind when assessing these unwell patients.

Table 1 : Risk factors for AAC. Adapted from Huffaman and Schenker [2].

Commonly associated risk factors for AAC
Trauma: leading to hospitalization; some factors particularly leading to the diagnosis of AAC in trauma are blood transfusions (>12 units), Injury Severity Score > 12, and tachycardia (> 120 bpm)
Recent surgery (unrelated to gall bladder, abdominal, or extra-abdominal, 13 to include cardiopulmonary disease)
Shock of any kind
Burn
Sepsis
Bacterial—Brucellosis, Q fever, leptospirosis, tuberculosis, scrub typhus, salmonellosis, cholera
Fungal—Candida (albicans, glabrata, torulopsis)
Parasitic—Cyclospora, microsporidia, Plasmodium falciparum and vivax, Schistosoma mansoni
Viral–Cytomegalovirus, Ebstein–Barr virus, 15a Dengue virus
Critical illness (any patient requiring ICU care)
TPN
Prolonged fasting
Rarely associated risk factors for AAC
Hypovolemia
Postendoscopic retrograde cholangiopancreatography
Increased length of hospital stay
Immunodeficiency: acquired immune deficiency syndrome, transplant
Chronic illness: diabetes, hypertension, atherosclerotic disease, obesity
Vasculitides: Churg–Strauss, giant cell arteritis, Henoch–Schönlein purpura, polyarteritis nodosa, lupus
Obstruction: ampullary stenosis, ascariasis, echinococcus, tumor (extrinsic or intrinsic)

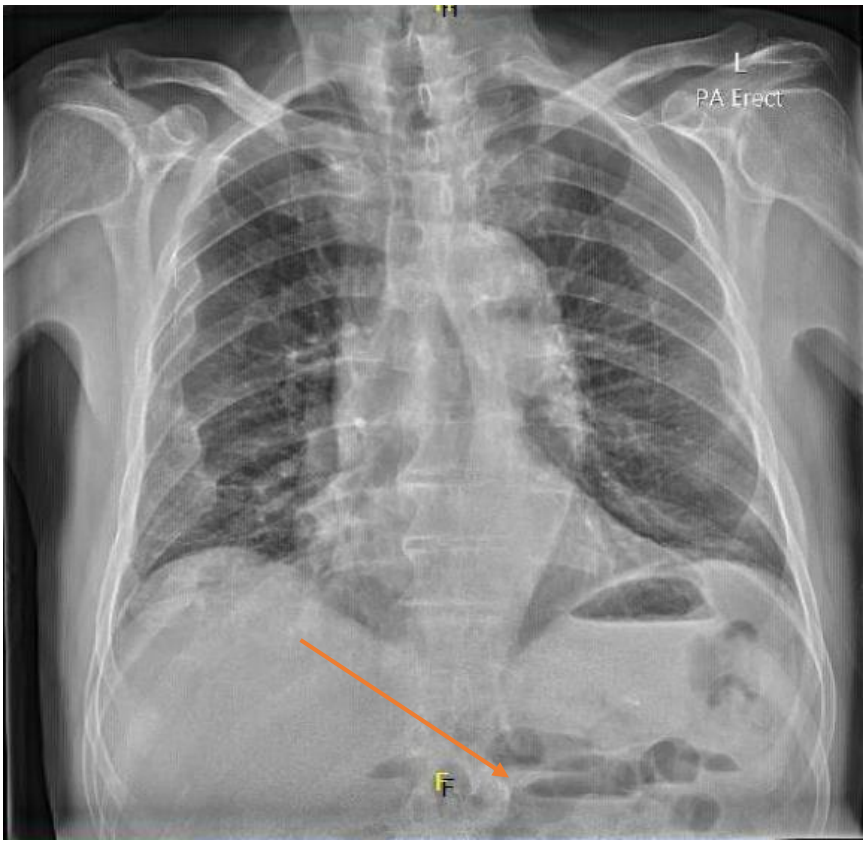

Image 1 : Chest x-ray displaying multiple air fluid levels

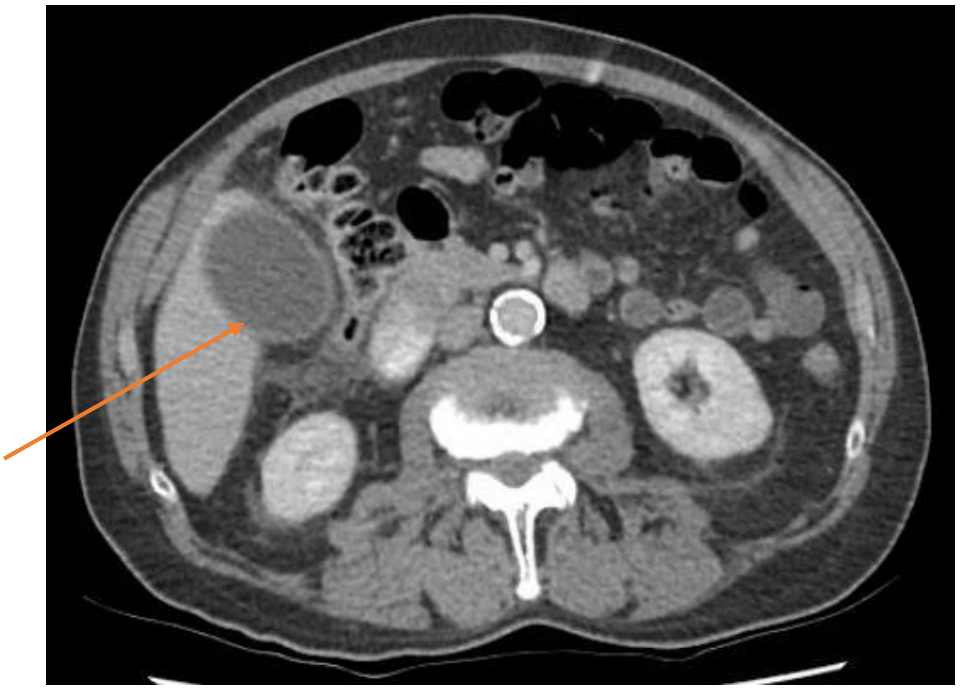

Image 2 : A distended gallbladder can be seen with thickened walls

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Cardiac Cavernous Hemangioma at the Right Atrium- A Rare Case Report with Review of Literature

By Nito Yepthomi, Rita Basu Mitra, Anadi Roy Chowdhury & Goutam Bandyopadhyay

RG Kar Medical College and Hospital, Kolkata, India

Abstract- Cardiac hemangiomas are extremely rare forms of tumor and account for only 2.8–5% of all benign cardiac tumors [1,2]. It is a rare benign primary cardiac tumor, with less than 100 cases described in current cardiac literature.[3] We present a 30-year-old woman presented with feature of palpitation, dyspnoea on exertion and occasional chest pain for last 3 years.

Keywords: *cardiac neoplasm, cavernous hemangioma, interatrial septum.*

GJMR-I Classification: *NLMC Code: WO 500, WG 205*

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Cardiac Cavernous Hemangioma at the Right Atrium- A Rare Case Report with Review of Literature

Nito Yepthomi [α], Rita Basu Mitra [σ], Anadi Roy Chowdhury [ρ] & Goutam Bandyopadhyay [ω]

Abstract- **Cardiac hemangiomas are extremely rare forms of tumor and account for only 2.8–5% of all benign cardiac tumors [1,2]. It is a rare benign primary cardiac tumor, with less than 100 cases described in current cardiac literature.[3] We present a 30-year-old woman presented with feature of palpitation, dyspnoea on exertion and occasional chest pain for last 3 years.**

Keywords: cardiac neoplasm, cavernous hemangioma, interatrial septum.

I. Introduction

Hemangioma of the heart, presenting as a primary cardiac tumor is extremely rare with less than 100 cases described in current cardiac literature.[3] The origin of hemangiomas is uncertain; they are thought to be either true neoplasm or hamartomas. They are common benign congenital vascular lesions most often occurring in the skin. However in rare instances it can be occasionally found in internal organs. Here we present a case of cavernous hemangioma involving right atrium.

II. Case Report

A 30 year old female presented with palpitation, dyspnoea on exertion and occasional chest pain for last 3 years. Examination of the precordium revealed loud S 1, normal split of S2 There was a mid-diastolic murmur, best heard on L 3rd inter- costal space parasternally. ECG showed Sinus rhythm with Left axis deviation, ECHOCARDIOGRAPHY showed Situs solitus, AV & VA concordance, a large mass in right atrium diagnosed as having myxoma. Other routine investigations did not reveal any abnormality. The patient was taken to the operating room for elective excision of the cardiac mass, which was believed to be an atrial myxoma. The mass was successfully excised along with a small portion of inter -atrial septum. This resulted in an atrial septal defect which was closed primarily. The patient had an uneventful postoperative period and was safely discharged on 7th post operative day. Grossly the mass was about 2cms in maximum dimension, with dilated and tortuous vessels over it. The specimen was attached with the septum with a narrow stalk and was send for histopathological examination. Microscopical Examination shows presence of cavernous spaces containing blood elements lined by flattened endothelium. Occasional medium sized feeder vessels are also noted.

III. Discussion

Cardiac hemangiomas are benign vascular tumors consisting of blood vessels and are identical to hemangiomas located elsewhere in the body. Histologic patterns that have been described include capillary hemangiomas, cavernous hemangiomas, hemangioendotheliomas, and intramuscular hemangiomas.[4] Among them, cavernous and capillary types are encountered more frequently. The epicardium is the most common location for cardiac hemangiomas, but they may also be found in myocardium and endocardium. A cavernous hemangioma is a spongy mass of wide blood-filled spaces which are pleomorphic in shape and dimension[5]. Hemangiomas can present in any age group with a mild predominance in females. The symptomatology depends on the anatomic location and extension of the tumor. Preoperative diagnosis of a cardiac hemangioma, occurs in a minority of cases. The diagnosis of cardiac tumors is aided by imaging techniques however periodic examinations and echocardiography are recommended [6]. Echocardiography is a sensitive and noninvasive modality for detecting hemangiomas [6,7]. Surgical excision is the mainstay of treatment because of the benign nature of the tumor. The long-term prognosis is favourable after adequate surgical resection. The Authors Declare there is No Conflicts of Interest

IV. Conclusion

However, rare this tumor may cause sudden death, and there is remote chance of transformation to angiosarcoma according to one case report [9]. As a result, the mainstay of treatment of these tumors is surgical resection. Postoperative follow-up is mandatory for recurrence monitoring [8].

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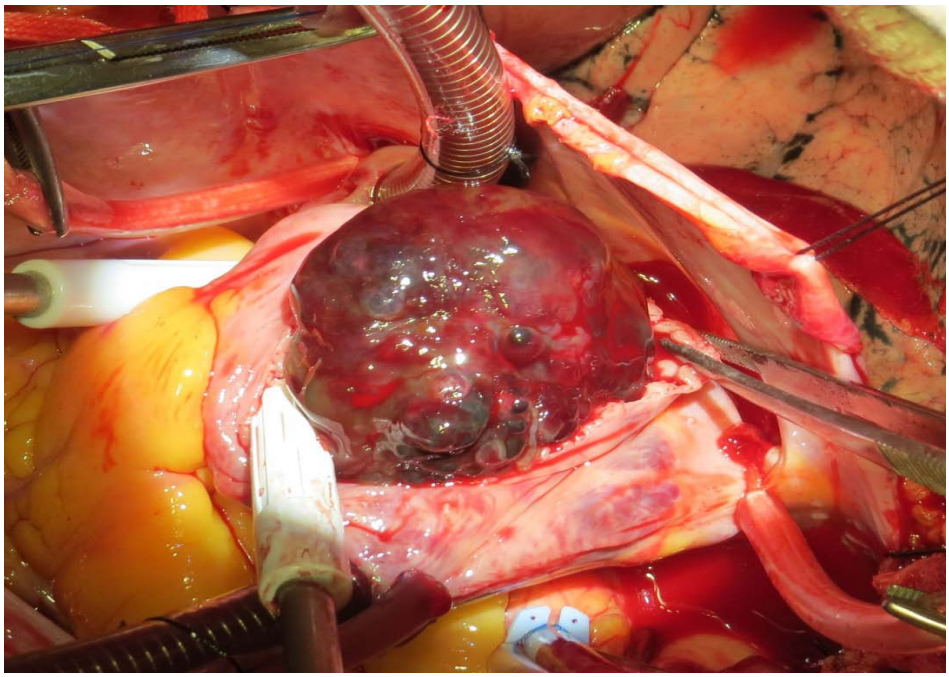

Figure 1 : Intraoperative photograph showing haemorrhagic mass located in the right atrium.

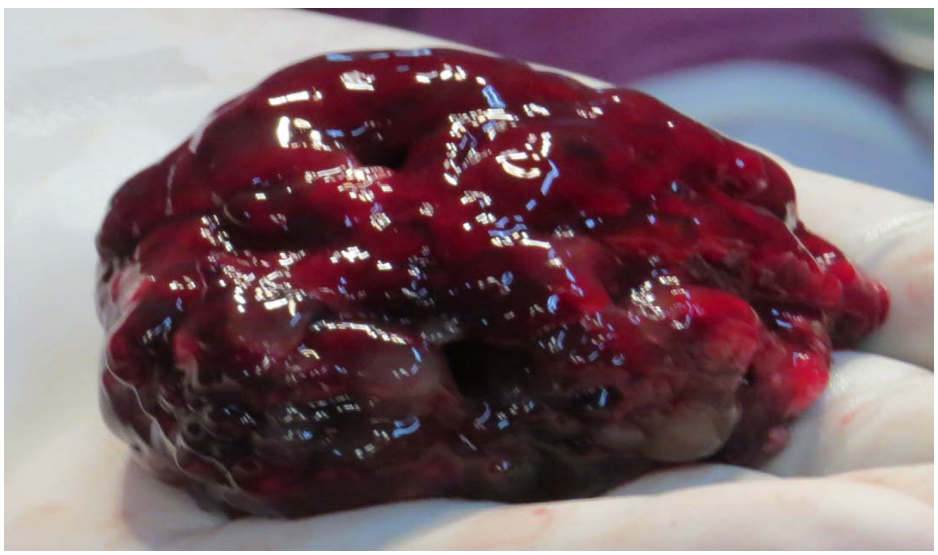

Figure 2 : A mass of about 2 cm in diameter, with dilated and tortuous vessels over it.

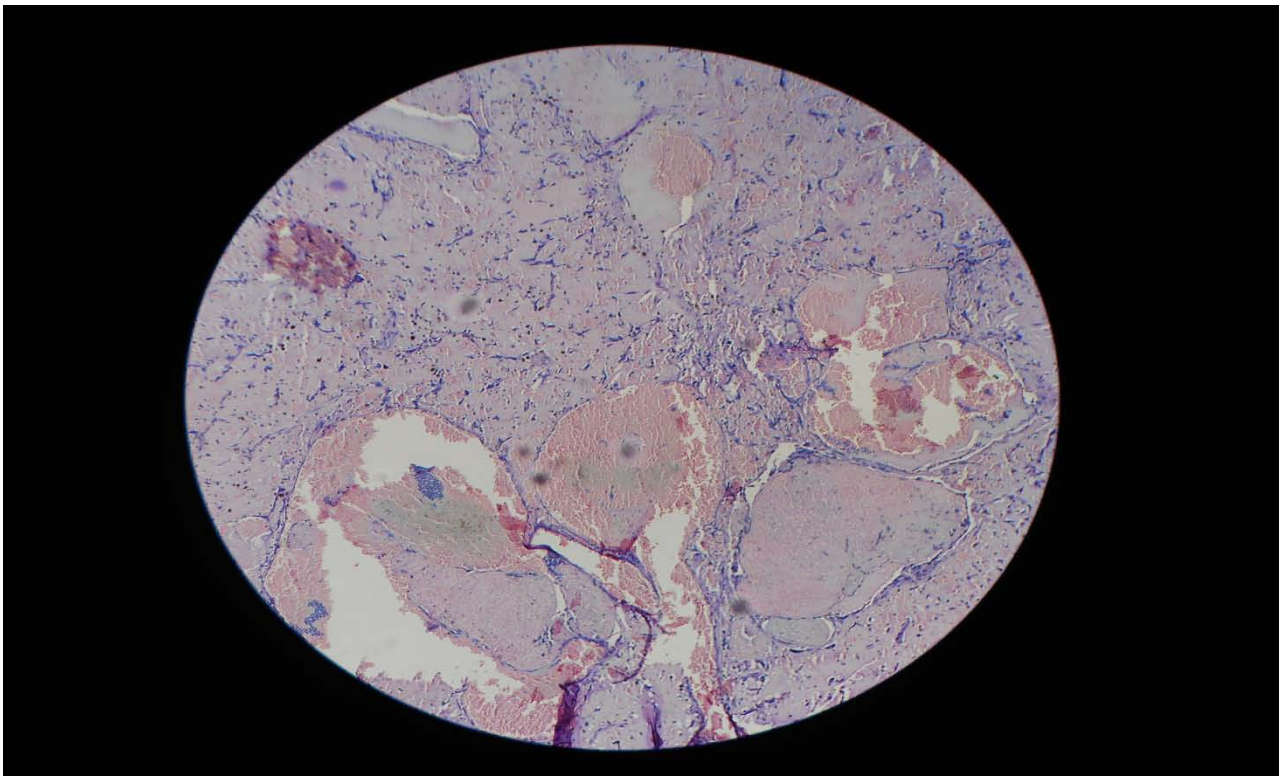

Figure 3 : Presence of cavernous spaces containing blood elements lined by flattened endothelium.(10X)

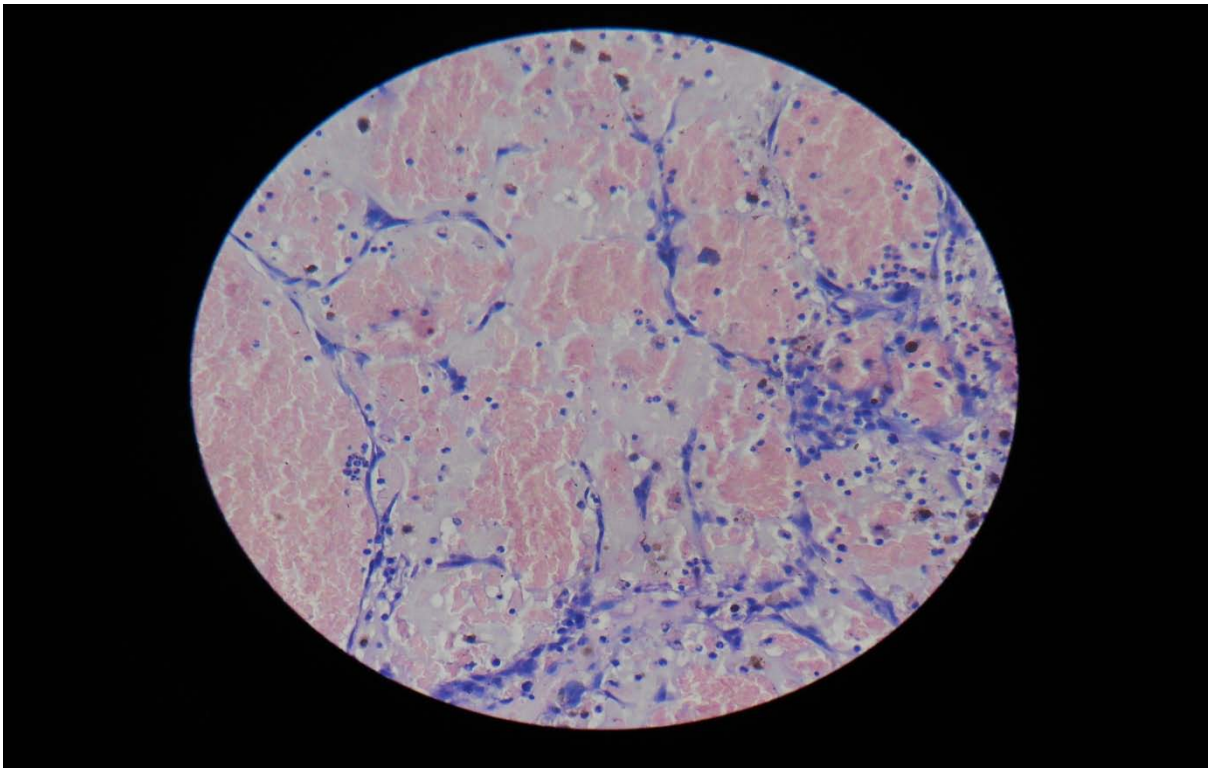

Figure 4 : (40X)

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Metabolic Syndrome in Bangladeshi Patients of Rheumatoid Arthritis

By Aziza Sultana, Saimun Naher, Md. Abu Hanifa, Bimal Chandra Roy,
Md. Shafiul Alam & Prosannajid Sarkar

Rangpur Medical College Hospital, Bangladesh

Abstract- *Background:* Rheumatoid arthritis (RA) is a chronic inflammatory disorder of unknown etiology, characterized by systemic symptoms that particularly involve the joints and may lead to deformities during the course of the disease. It is the most common persistent inflammatory arthritis, occurring throughout the world and in all ethnic groups.

Objectives: To find out the association of metabolic syndrome in rheumatoid arthritis patients as compared to healthy individuals.

Methods: This case control study was carried out with 50 patients of rheumatoid arthritis (case) and 50 apparently healthy individual (controls) in Biochemistry Department, Dhaka Medical College, Dhaka from July 2014 to June 2015. After overnight fast (at least 8 hrs) venous sample was taken from each subject.

Keywords: *rheumatoid arthritis, metabolic syndrome, patients, biochemistry department, bangladesh.*

GJMR-I Classification: *NLMC Code: WE 346*

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Metabolic Syndrome in Bangladeshi Patients of Rheumatoid Arthritis

Aziza Sultana [α], Saimun Naher [σ], Md. Abu Hanifa [ρ], Bimal Chandra Roy [ω], Md. Shafiul Alam [¥] & Prosannajid Sarkar [§]

Abstract- Background: Rheumatoid arthritis (RA) is a chronic inflammatory disorder of unknown etiology, characterized by systemic symptoms that particularly involve the joints and may lead to deformities during the course of the disease. It is the most common persistent inflammatory arthritis, occurring throughout the world and in all ethnic groups.

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Methods: This case control study was carried out with 50 patients of rheumatoid arthritis (case) and 50 apparently healthy individual (controls) in Biochemistry Department, Dhaka Medical College, Dhaka from July 2014 to June 2015. After overnight fast (at least 8 hrs) venous sample was taken from each subject. Plasma glucose, serum total cholesterol, serum triglycerides, high density lipoprotein-cholesterol was measured by enzymatic procedure and serum low density lipoprotein-cholesterol was calculated. Metabolic syndrome was diagnosed according to NCEP ATP III 2004 criteria.

Results: In this age and sex matched study metabolic syndrome was significantly more common (p =0.002) in rheumatoid arthritis patients (44%) than in controls (16%). The components of NCEP ATP III 2004 criteria for metabolic syndrome were also significantly more in rheumatoid arthritis patients than in controls-impaired fasting plasma glucose levels (66% vs 4%), central obesity (28% vs 12%), high blood pressure (68% vs 22%), high triglyceride (36% vs 6%), and low HDL-C (96% vs 66%).

Conclusion: The association of metabolic syndrome is significantly higher in patients with rheumatoid arthritis as compared to healthy controls. These findings suggest that screening for metabolic syndrome in patients with RA may reduce the risk of cardiovascular diseases in these patients.

Keywords: rheumatoid arthritis, metabolic syndrome, patients, biochemistry department, bangladesh.

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I. Introduction

Rheumatoid Arthritis (RA) is a chronic inflammatory disorder of unknown etiology, characterized by systemic symptoms that particularly involve the joints and may lead to deformities during the course of the disease[1]. It is the most common persistent inflammatory arthritis, occurring throughout the world and in all ethnic groups. The prevalence is lowest in Black Africans and Chinese and highest in Pima Indians. In Caucasians, approximately 0.8-1.0% is affected, with a female to male ration of 3:1. The clinical course is prolonged, with intermittent exacerbations and remissions[2].

The established RA can be distinguished from other forms of arthritis by multiple criteria; and those agreed by the American Rheumatism Association. The median prevalence estimate the RA for the total population in South European Countries is 3.3 cases per 1000, and for developing countries 3.5 cases per 1000[3]. RA affects 0.5-1.0% of adults in developed countries and is 2-3 times more frequent in women than men[4]. The onset is most frequent during the fourth and fifth decades of life with 80% of all patients developing the disease between the ages of 35-50 years[5]. The overall prevalence of RA in Bangladesh is 0.7% in rural population and 0.4% in urban population[6].

RA is considered an autoimmune disease[7] and the overall systemic and articular inflammatory load drives the destructive progression of the disease. In addition, the extent of inflammation has been linked to an increased risk of cardiovascular mortality in patients with RA as compared to general population[8]. This is because the patients with RA are more prone for accelerated atherosclerosis which in turn is a risk factor for cardiovascular disease and thus there decreased survival in them[9].

The metabolic syndrome is considered as one of the best known risk factors to the development of CVD. The autoimmune systemic inflammatory response, along with the presence of metabolic syndrome doubles the risk for fatal or non fatal CVD and coronary atherosclerosis, regardless of age and sex[10]. Rheumatoid arthritis has been associated with increased prevalence of metabolic syndrome, but its role in the different characteristics of the disease, such as disease duration, activity and treatment with

glucocorticoids, is not well defined from a clinical point of view, the relevance of metabolic syndrome derives from its strong association with the occurrence of subclinical atherosclerosis, major adverse cardiovascular events and death. Atherosclerosis, the main determinant of CV morbidity, and mortality occurs prematurely in RA. Patients with RA have an increased risk for CVD. Metabolic syndrome occurs up to 45% of RA patients[11,12].

Metabolic syndrome previously known as syndrome X constitutes a cluster of abnormalities including abdominal obesity, insulin resistance, hypertension, hypertriglyceridemia and decreased high density lipoprotein cholesterol[13] and recognized it as multiplex of risk factors for cardiovascular diseases[14]. Syndrome X has now been re-designated as metabolic syndrome after WHO named it so in 1999. WHO included several parameters as the diagnostic criteria for metabolic syndrome such as presence of diabetes mellitus, hypertension, hypertriglyceridemia and low serum HDL-cholesterol and high BMI. The National Cholesterol Education programmes adult treatment panel III (NCEP-ATP III) report identified the metabolic syndrome as a multiplex of risk factors for cardiovascular diseases that deserve more clinical attention[15]. Modified NCEP-ATP III for metabolic syndrome includes raised fasting plasma glucose, hypertension, hypertriglyceridemia low serum HDL-Cholesterol and increased waist circumference[13].

Proinflammatory cytokines, tumour necrosis factor alpha (TNF-α), interleukin-6 (IL-6) seen in patients with RA contribute to insulin resistance which is the basic metabolic disorder seen in metabolic syndrome. Insulin resistance leads to other metabolic disturbances, like hyperglycaemia, dyslipidemia[16] which independently contribute to atherosclerosis and cardiovascular risk.

The basic pathology in RA is inflammation which in turn is the basis of atherosclerosis and this has led to study the relationship between systemic inflammatory conditions such as RA and the risk for CVD. It was seen that even in the absence of traditional coronary risk factors, women with RA have a 2-3 fold higher risk of CVD[17]. Also another study showed that patients with RA are 50% more likely to suffer a cardiovascular event than subjects from the general population[18].

Present study was designed in a small group of Bangladeshi population to observe the association of metabolic syndrome in patients of Rheumatoid Arthritis.

II. Objective of the Study

The main objective of this study was to find out the association of metabolic syndrome in rheumatoid arthritis patients as compared to healthy individuals.

III. Materials and Methods

This is a case control study and conducted from July 2014-June 2015 in the Department of Biochemistry, Dhaka Medical College, Dhaka, Bangladesh. Study population included 50 adult diagnosed cases of rheumatoid arthritis attending in Department of Medicine of Dhaka Medical College Hospital, Dhaka and 50 apparently healthy individuals (attendants of patients and stuff members of the hospital) as control. Sample Size was one hundred and purposive sampling was done. Rheumatoid arthritis patients were selected as per inclusion and exclusion criteria. Diagnoses were done on the basis of revised criteria of ACR 2010 including:

1. Compatible clinical history.
2. Physical examination of the patients.
3. Laboratory investigation in selected cases (ESR, CRP, RF, X-ray, Anti-CCPA).

Controls were selected by age and sex matched apparently healthy men and women. After selection of the subjects, the objectives, natures, purpose and potential risk of all procedures used for the study were explained in details and informed written consent were taken from both the patients or attendants and the control. Particulars, detail history, clinical examination, physical and anthropometric measurements were taken in a predesigned data collection form, from all the cases and controls .All data were recorded in a predesigned data collection sheet. Continuous variables were expressed as mean ± SD and were compared between groups of patients by student's 't' test. Categorical variables were compared using a chi-square test or Fischer's exact test as appropriate, and were presented as absolute frequencies with percentages. All p values were two-tailed with significance defined as $p < 0.05$ at the level of 95% confidence interval. All analysis was done using the SPSS version 21 package for windows.

IV. Results

Out of total 100 study subjects, 50 were RA cases and 50 were apparently healthy controls. Following results were found in this study-

Mean age was 41.94 (SD±8.57) years in case and 39.62 (SD±9.26) years in control. The case and control groups were age matched. In both groups maximum study subjects were in age group 41-50 years. In case maximum 22 (44.0%) patients were in age group 41-50 years and similarly in control group maximum 20 (40.0) patients were in same group. Difference between two group was not statistically significant ($p>0.05$). In both groups female was predominant than male. The case and control groups were sex matched.

In case group, 22 (44.0%) patients had metabolic syndrome and in control group only 8 (16.0%) subjects had metabolic syndrome. The difference between these two groups was statistically significant ($p<0.05$).

Table I : Distribution of metabolic syndrome in case and control groups

Metabolic syndrome	Group		*p* value
	Case n (%)	Control n (%)	
Yes	22 (44.0)	8 (16.0)	
No	28 (56.0)	42 (84.0)	0.002
Total	50 (100.0)	50 (100.0)	

Chi-square test was done to measure the level of significance, $p < 0.05$ was significant

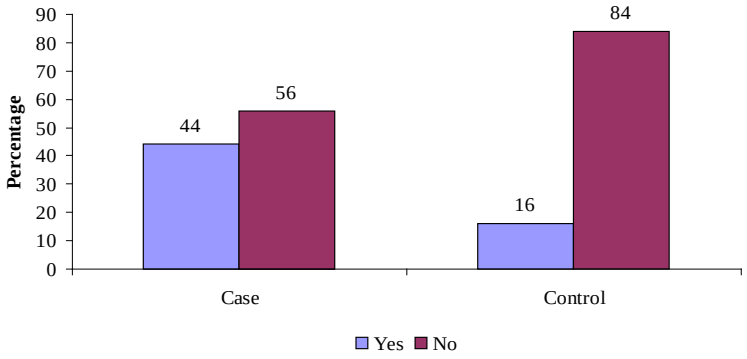

Figure 3 : Bar diagram of distribution of metabolic syndrome in case and control groups.

When comparison of different anthropometric components of metabolic syndrome (BP & WC) in case and control according to NCEP-ATPIII 2004. There were statistical significant difference in BP and WC between case and control. Mean of systolic BP, Diastolic BP, WC and BMI were significantly higher in case group than control group.

Mean fasting plasma glucose and Triglyceride were significantly higher in case group than control group and HDL-C was significantly lower in case group than control group. Mean of total cholesterol and LDL-C were almost same in both groups.

Table II : Comparison of Fasting Plasma Glucose and Lipid Profile between case and control

FPG and Lipid Profile	Group		*p* value
	Case (Mean ± SD)	Control (Mean ± SD)	
Fasting Plasma Glucose (mmol/l)	6.52 ± 1.93	4.66 ± 0.95	0.001
Total Cholesterol (mg/dl)	181.06 ± 30.38	177.40 ± 27.77	0.531
HDL-C (mg/dl)	34.88 ± 7.02	42.72 ± 7.02	0.001
LDL-C (mg/dl)	118.34 ± 30.53	110.40 ± 26.78	0.170
Triglyceride (mg/dl)	137.02 ± 40.74	112.72 ± 37.76	0.003

Unpaired t-test was done to measure the level of significance, $p < 0.05$ was significant

In comparison to different biochemical components of metabolic syndrome (FPG, HDL-C & TG) in case and control according to NCEP-ATP III 2004, there were statistical significant difference in FPG, HDL-C and TG between case and control.

Table III : NCEP-ATP III 2004 based comparison to biochemical components of metabolic syndrome in case and control

Biochemical components of metabolic syndrome		Group		*p* value	OR (95% CI)
		Case n (%)	Control n (%)		
FPG	≥ 5.6 mmol/L	33 (66)	2 (4)	0.001	46.58 (10.08-215.31)
	< 5.6 mmol/L	17 (34)	48 (96)		
HDL-C	Male ≤ 40 mg/dl / Female ≤ 50 mg/dl	48 (96)	33 (66)	0.001	12.36 (2.67 – 57.13)

TG	Male > 40 mg/dl / Female > 50 mg/dl	2 (4)	17 (34)	0.001	8.81 (2.39 – 32.04)
	≥ 150 mg/dl	18 (36)	3 (6)		
	< 150 mg/dl	32 (64)	47 (94)		

Chi square test was done to measure the level of significance. $p < 0.05$ was significant

V. Discussions

Rheumatoid Arthritis is a systemic inflammatory disorder characterized by chronic symmetric and erosive synovitis that preferentially affects peripheral joints, with a prevalence of 0.5-1% in the population[19]. Emerging epidemiological evidence suggests that CVDs account for approximately 50% of all RA associated deaths[20]. Metabolic Syndrome is a cluster of cardiovascular risk factors including central obesity, atherogenic dyslipidemia, hypertension and glucose intolerance, and is a strong predictor of cardiovascular diseases, diabetes and stroke[21]. Overlapping inflammatory pathways and genetic susceptibility may be potential biologic links underlying this association[22].

The age of the study participants ranged from (20-60) years. The mean age was found 41.91±8.57 years in cases and 39.62 ±9.26 years in control group. The mean age difference was not found statistically significant (p=0.197).

In the case group 17(34.0%) cases were males and 33 (66.0%) cases were females. In the control group there were 23 (46.0%) were males and 27(54.0%) were females the difference of male female ration was not found statistically significant (p=0.221) between two groups. This observation was consistent with the result of the study[23]. They observed that age and sex are not important risk factors for metabolic syndrome.

Increased waist circumference (Abdominal obesity) was a notable feature in our study which was found 84.5±10.3 cm in cases and 80.0±9.1 cm in controls, which showed significant difference between two groups (p=0.025) statistically. This result is in agreement with that of other previous study[24,25].

In our study, it is observed a higher prevalence of metabolic syndrome among RA patients than the controls (44% Vs 16%, p=0.002), which was similar to the results of well designed studies[24,26].

These findings tend to support that, there is an association between RA and Metabolic syndrome in hospital based RA patients in Bangladesh, which gives an insight into the pattern of co-morbidities of RA in our country.

In our study, the prevalence of high blood pressure was significantly high in cases than in controls. The mean systolic Blood pressure was 132.7±12.46 mm of Hg in cases and 120.3±8.33 mm of Hg in controls (p=0.001) and the mean diastolic BP was 83.9±8.8 mm of Hg in cases and 74.9±6.7 mm of Hg in controls (p=0.001). The difference was statistically significant. These observation were consistent with the results of the others studies[26,27]. Possible explanation may be, insulin resistance or obesity activates sympathetic nervous system and renin-angiotensin aldosteron system which subsequently results in hypertension.

Increased fasting plasma glucose was the most predominant feature (66%) contributing to increased prevalence of metabolic syndrome in RA group in our study and it was significantly higher in cases than controls (66% Vs 4%). This result is supported by several previous studies.

In our study, it was observed that 36% patients had presented with hypertriglceridemia in case group and 6% in control group which was statistically significant (p=0.001). In some studies[24,26] found insignificant difference of triglyceride level between case and control and another study[23] found triglyceride is significantly higher in control group in their study.

Regarding HDL-C, which is one of the biochemical components of metabolic Syndrome, it was found that 96% of cases had reduced HDL-C in case group whereas it was 66% in control group which was statistically significant (p=0.001), which was consistent with the findings of other studies[24,28].

VI. Limitations

We have some limitations of this study like-

- Small sample size, which may reduce the strength of the study.
- The sample was taken purposively, so there may be a chance of bias which can influence the result.

VII. Conclusion

Although a broad and evolving literature supports that RA is associated with metabolic syndrome, the association as well as their causal relationship is still unsettled. Exploration of these associations has practical consequence in the management of both the disorders. In conclusion this study revealed that metabolic syndrome is associated with RA. Therefore, in addition to the evaluation of RA, metabolic syndrome should be sort out in all RA patients to reduce impending cardiovascular events.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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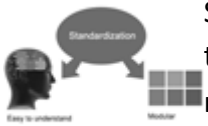

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2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

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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.
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- 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
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- In spite of position, each table must be titled, numbered one after the other and complete with heading
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- 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."
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- 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.
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Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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