



A Special Spleen Mass: A Case Presentation Of A Man

[Duncan D Mugala](#)^{1,2}, [Chansa Mulenga](#)³, [Ngoma Royd](#)³, [Banji Namusamba](#)⁴

¹ Senior Lecturer [Copperbelt University](#), School of Medicine Kitwe, Zambia

² Senior Consultant General Surgery, Ndola Teaching Hospital, Zambia

³ Junior Resident Surgical Doctors, STP students at Ndola Teaching Hospital, Zambia

⁴ Final Year Medical Student at the [CBU School of Medicine](#) Ndola

Corresponding author: **Duncan D Mugala, BSc (HB), MB ChB, MMed, FCS (ECSA)**

Address: The [Copperbelt University-School of Medicine](#), Ndola Teaching Hospital, 6th Floor West wing, P. O. Box 71191, Ndola.

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Abstract

There are Type I and Type II Spleen cysts; the Type I are true primary cysts. These may have cysts with a cellular lining of parasitic appearance or non-parasitic appearance. The non-parasitic type I splenic cysts are themselves classified as congenital or neoplastic. The Type II cysts are secondary cysts, which are said to be false, they are without a cellular lining and are commonly found following a blunt trauma to the spleen [2]. The Nonparasitic splenic cysts (NPSCs) are uncommon lesions of the spleen; many are often reported in anecdotal publications. As said above the classifications of this condition have been based on the presence or absence of an epithelial lining, they indicate either a congenital or a traumatic cyst [3]. It is believed that the non-parasitic cysts of the spleen are most common in Europe and North America and the spleen cysts with parasitic infection are more common in Africa and Central America.

It is believed that the majority of splenic cysts occur as a result of parasitic infection, commonly in countries where hydatid disease is endemic in countries as mentioned above. In the Western world however, their occurrence is extremely rare and the aetiology is less clear [4]. Is it really true that splenic cysts here are parasitic infections?

Keywords:

Epidermoid; Cyst; Nonparasitic Splenic cysts (NPSCs); Laparotomy; Laparoscopy; Spleen; Parasitic; Partial; Splenectomy; Ultrasound.

Introduction

In 1958, Splenic Cysts was classified by James W. Martin and others [1]. In addition, M Geraghty, I Z Khan, and K C Conlon have also put up this classification [2]. It is reported that there are the Type I and Type II cysts; the Type

I is true primary cysts, they may have primary cysts with a cellular lining of parasitic appearance or non-parasitic appearance. The non-parasitic type I splenic cysts are themselves classified as congenital or neoplastic. The Type II cysts are secondary

cysts, they are said to be false. They are without a cellular lining. Most commonly they are found following a blunt trauma to the spleen [2].

There is also the issue of Parasitic Splenic Cysts (PSCs) and the Non-parasitic Splenic Cysts (NPSCs). The NPSCs are uncommon lesions of the spleen; many are often reported in anecdotal publications. As said above the classifications of this condition have been based on the presence or absence of an epithelial lining. This indicates either a congenital or a traumatic cyst [3].

It is believed that the non-parasitic cysts of the spleen are most common in Europe and North America and the spleen cysts with parasitic infection are more common in Africa and Central America. Generally, the incidence of Splenic Cysts is not common and because of this, there is no evidence-based management. It is believed that the majority of Splenic Cysts occur as a result of parasitic infection, most commonly in countries where Hydatid disease is endemic in countries as mentioned above. In the western world, however, their occurrence is extremely rare and the etiology is less clear [4].

Some Splenic Cysts are also the epidermoid cysts of the spleen; they are a rare lesion comprising less than 10% of benign, non-parasitic splenic cysts. Leon Morgenstern says the following "NPSC present as lesions with a very characteristic gross appearance and lining. The trabeculated interior can be lined with epidermoid, transitional, or mesothelial epithelium. Desquamation of the lining can lead to a spurious diagnosis, but careful search usually discloses the lining remnant". He goes on to supply another way of thinking about these NPSCs. He proposes a new classification of NPSC, based on the characteristic of gross findings: He proposes that NPSC are of congenital origin, with a lining derived from mesothelium. It is also said by Yon Do Ough, Robert Nash, and Dennis A. Wood, that Epidermoid cyst (Metaplastic Mesodermal Cyst) is the most common true cysts of the spleen. The pathogenesis is unknown. The

lesion is usually asymptomatic and has a characteristic gross morphology [5]. Leon Morgenstern believes that trauma does not play a primary role in pathogenesis [3]. Other people add on, they say Non-parasitic cysts are classified as primary (true, epithelial), lined by an epithelial cover (Epidermoid, Dermoid, and Mesothelial) or endothelial cover (Hemangioma, Lymphangioma), and secondary (pseudocysts, non-epithelial), which are usually of post-traumatic origin [6]. Dachman AH, Ros PR, Murari PJ, and Olmsted WW carried out a series of 52 cases of splenic cysts on file in America. They found 24 true (Epidermoid) and 28 false (posttraumatic) cysts [7].

Wu Hao M, John M.D, and Kortbeek B, go on to say that splenic post-traumatic cysts also known as pseudocysts occur the following trauma and they are uncommon. They did a retrospective chart review. They found SIX cases of splenic pseudocysts over a 6-year period. One splenic pseudocyst spontaneously resolved. A second splenic cyst was removed by open splenectomy. The remaining 4 patients were all first treated with percutaneous drainage [8]. In terms of general abdominal cysts, Macheras A, Misiakos EP, et al., say that the Primary Splenic Cysts makeup 30 to 40% of the total and are more commonly in children and young adults.

It is also known that Splenic Cysts are thought to be unusual in surgical practice; they can be parasitic infections. These could be hydatid infection or Echinococcus granulosus infection. However, they are not common. Robbins F G, Yellin AE, Lingua, et al., carried a study of 42,327 autopsy records of the Los Angeles County, University of Southern California Medical Center [9]. It revealed only 32 benign splenic cysts found at autopsy. This is how rare cystic lesions of the spleen occur. It is known that epidermoid splenic cysts do occur in children. These cysts in children present with an abdominal mass with or without abdominal pain. They can be identified only if they are greater than 8 cms in size.

How is the diagnosis made?

It is known that Contrast gastrointestinal studies and intravenous urography help to identify mass tumours of the gastrointestinal or genitourinary tract. It is also known that Sonar scans may confirm the cystic nature of the cystic mass localized to the spleen. Ultrasonography is the most cost-effective and least invasive method of evaluation to identify these lesions [10]. Ultrasonography of the upper abdomen can reveal a single unilocular spherical cystic mass in the anterior surface of the spleen. It is also known that Computerized tomography can confirm the ultrasound findings of a subcapsular cystic mass with an almost 10 cm of maximal diameter within the spleen with attenuation value near that of water with a non-calcified wall says Macheras A, Misiakos EP et al., [6]. On the part of X rays, it is not easy because the reliable radiologic distinction between true or false splenic cyst does not seem possible. The radiologists say that the Complex mass may represent a "transition" between the hematoma and false splenic cyst [7]. Endoscopic examination of the upper gastrointestinal tract also does not reveal any significant findings. A plain abdominal CT scan can show the splenic localization of a large cyst. This displaces the remaining splenic parenchyma. It is called the "beak-sign" [6]. Computed tomography CT can also reveal a very large splenic cyst with compression of adjacent viscera. Laboratory tests can also reveal thrombocytopenia. Serologic tests may be negative or positive for parasitic infection [4].

Bacteriological cultures of the fluid are usually negative. Cytological examination of the fluid shows a few lymphocytes and histiocytes. Histological examination of the cyst wall will tend to reveal the presence of dense cytopenic connective tissue without any epithelial lining, and in such cases, it confirms the diagnosis of a splenic pseudocyst.

How do we manage these patients with Splenic Cysts?

The methods of treatment of splenic cysts are a protea with no widely accepted policy. Liew SH, Clements WD, Wilson BG proposed that a

presence of a splenic cyst in an adolescent female or male a surgical partial splenectomy must be treated [11]. Macheras A, Misiakos EP, et al., propose that the partial splenectomy can be performed with the laparoscopic approach, they believe it can safely be done. They propose that this procedure is recommended if the cyst is located in the poles of the spleen, or if the cyst cavity is deep, outside these sites there is a higher risk of recurrence [6]. Hansen Mark Berner and Moller Anne Claudi also recommend and proposed that surgeons should make every effort to preserve splenic tissue and spleen-saving techniques with laparoscopic techniques [12]. In fact, there is quite a number of surgeons who believe that laparoscopic partial splenectomy is a preferred treatment for splenic cysts [13].

Despite the above sentiments, many surgeons believe that Laparotomy with splenectomy has been the method of choice for the treatment of primary splenic cysts. The thought currently is the advice of performing a conservative surgical procedure, especially in children and young adults, in order to avoid overwhelming post-splenectomy infection [6]. Most workers know that Splenic Cysts are rare in young men and Children and the usual treatment is splenectomy which is performed to prevent infection, hemorrhage, or rupture of the cyst [5]. Others like Wu Hao M, John M.D, and Kortbeek B, find that percutaneous drainage and laparoscopic fenestration have an unacceptably high rate of failure. They encourage that partial or complete splenectomy should be done for young. Usually, these patients are healthy despite the fact that they have large symptomatic splenic pseudocysts [4, 8, 14].

Silvio Marcio Pegoraro Balzan, Charles Edison Riedner, et al., had this in saying: "The treatment for splenic cysts may be surgery or no intervention. The surgical treatment of choice has been total splenectomy until recently. There are many other treatment options nowadays, including percutaneous drainage, marsupialization, enucleation, partial

Case Report

splenectomy, and total splenectomy with autotransplantation of splenic tissue" [15].

It is reported that Splenic Cysts may remain asymptomatic and K C Conlon go on and say that Splenic Cyst formation following blunt abdominal trauma is thought to occur following haematoma formation with resultant resorption and serous fluid collection. They go on to say that the most common symptoms include left upper quadrant pain, nausea, and vomiting secondary to compression 30 to 60% of patients [2]. M Geraghty, I Z Khan, association of the stomach. These patients may be discovered after the complications of rupture, intracapsular hemorrhage or infection [2]. We present a rare case of a large Splenic Cyst in Ndola a city in Zambia.

Case Presentation

Our patient was HC. He was a male who was 36 years old. He stays in Ndola at Mutaba village. His tribe is Lamba and his religion is Christianity. He was referred from a Ndola Masala Clinic to our Ndola Teaching Hospital clinic.

His presenting complaint was an abdominal pain for seven months. Prior to this, the patient was well. He developed abdominal pain as a sharp pain felt on the left side of the abdomen under the costal margin. It was intermittent in nature, radiating to the back. The pain was mostly felt during the day, and aggravated by any physical activity. With the development of pain, the patient was unable to walk or work. The pain was relieved by lying down. He relieved the pain when he took Paracetamol (Panadol). He could not recall the history of any accident or any form of trauma.

The pain later became unremitting. It was a sharp constant pain on the left costal margin. The patient started noticing a distending abdomen on the same left side. There was a loss of appetite and he began losing his weight. There was no fever, night sweats, vomiting or diarrhea. The Patient was able to pass stool normally but was experiencing pain on passing urine. There was no blood in urine, no frequency. The color of his

urine was yellow.

The abdominal pain was not associated with a cough, difficulties in breathing, chest pain or any nightsweats. It was not associated with a headache, dizziness, or syncope. The worsening condition took the patient to the village clinic, where he was advised to do an abdominal scan. He was given Paracetamol to relieve the pain and referred to the Masala Clinic to do the appropriate investigations. The patient was finally referred to Ndola Teaching Hospital (NTH) for further management.

Review of systems:

The Cardiovascular System: There was no Orthopnoea, Paroxysmal Nocturnal Dyspnoea (PND), pedal swelling, and palpitation. In the Respiratory System, he had no cough, no chest pain, and dyspnoea. The Genitourinary tract was normal as he passes urine, he had no pain and he had no blood in urine. In the Central Nervous System, the patient was normal. The Muscular System was also normal.

Previous Medical History:

The patient had no history of any recent or past medical admissions, particularly for malarial infection. There was also no history of chronic illnesses such as Leukaemia, Kala-azar, Schistosomiasis, TB, Typhoid, and Cancers. There was no history of any surgical operations and there was also no past history of any blood transfusions done in the past.

Social and Economic History:

The patient was a charcoal burner he lived on a farm and did some farming. He drew water from a well at their farm. There was no stream in the vicinity. Our patient declined and said he does not drink alcohol and does not smoke cigarettes. However, the family in confidence said that it is true the patient never smoked but the man was a heavy alcohol consumer.

Case Report

Examination of our case:

The patient was ill-looking, rolling around in bed in severe pain. The pain was mainly affecting the abdomen but it also gave him severe back pain. He was fairly well hydrated, not in respiratory distress. He was neither pale nor jaundiced. His Blood Pressure was 126/76 mmHg. The Pulse rate was 79 per minute. His Respiratory Rate was 23 per minute. The Respiratory system and the cardiovascular system were normal.

The Abdomen was tense and distended but there were no visible veins and no visible peristalses. The Left Upper Quadrant (LUQ) and the Left Lower Quadrant (LLQ) were tender and were tympanic on percussion. There was a mass palpated in the left abdomen. It was smooth but we cannot go above the mass and it was extending to below the umbilicus. We thought it was a splenic mass.

The Differential diagnoses:

Our Differentials Diagnoses in our minds were; Primary Tumors of the Spleen, Idiopathic Tropical Splenomegaly, Lymphoma, Kala-azar (Visceral Leishmaniasis), Chronic Lymphocytic Leukaemia, Schistosomiasis.

Investigations in our case:

We closely had a look at the Chest X-Ray there were significant findings. We looked at the Ultrasound scans. We sent him for scans on two occasions.

The first abdominal scan:

The first scan was on 17/07/2018 and the report was that the patient had a large echo complex mass predominantly cystic with diffuse low-level echoes measures 19.3 cm and 18.8 cm, most likely arising from the left liver lobe. Both kidneys and spleen were normal. Pancreas was not appreciated. No free fluid collection in the peritoneal cavity. The comment thought was that the Sonographic features were suggestive of a hepatic mass.

The second abdominal scan:

This was three days later on 20/07/2018. A large complex abdominal mass covering the upper and lower left abdominal quadrants measures 164mm and 146mm in size, most likely are arising from the spleen. The liver was normal in size on the echotexture. Both kidneys are normal. Urinary bladder appears normal. Other upper abdominal organs not appreciated.

Comment: Complex abdominal mass- most likely arising from the spleen.

Our conclusion of the Abdominal Ultrasound Results was that the patient had a large complex abdominal mass covering the upper and lower left abdominal quadrants. The measures were 164mm and 146mm in size, most likely arising from the spleen.

Although it was not clear about the involvement of the Liver, we felt it was a normal liver on the echotexture. Both kidneys are normal. Urinary bladder appears normal. Other upper abdominal organs were not appreciated. We felt this was a complex abdominal mass- most likely arising from the spleen.

The Laboratory Results:

The Full Blood Count Tests findings were as follows:

Urea, Electrolytes and Creatinine:

The Urea and Electrolytes Tests were:

Sodium.....141mmol/L
Potassium.....3.06mmol/l
Chloride.....106.5mmol/l

Full Blood Count:

White blood cells.....8.10 x 10⁹/L
Red blood cell.....4.67 x 10¹²/L
Haemoglobin.....13.7 g/dL
Haematocrit40.2
MCV.....86.0 fl
MCH.....29.4 pg
MCHC.....34.1 g/dL
Platelets.....172x 10⁹/L
Mean platelet volume.....8.1 fl
Patient's ABO Group.....O positive

Case Report

Differential count:

Neutrophils.....72.5%.....5.87
x10⁹/L
Lymphocytes23.7%.....1.92 x 10⁹/L
Monocytes.....3.8%.....0.3 x10⁹/L
The Urea and Electrolytes and the Liver Function
Tests were normal.

maintained on Halothane 3.5% - 1.5% via oxygen 8L/min titration. For analgesia, Pethidine was given 40mg IV and continuous monitoring was done.

Halothane cut off at 09:45 hours due to hypotension and the patient was maintained on Ketamine intermittently 100mg/ml, every 10 minutes.

Intra-operative findings in our case:

The Anaesthesia notes were that patient was pre-oxygenated with 8L/ min of Oxygen via mask. He was inducted with Propofol, and relaxed with Scoline 100mg. Intubation was done with endotracheal tube size 8.0mm ID. He was

A midline incision was made. We extended the incision from the xiphoid sternum to the pubis. This was to allow us to explore the large abdominal mass. Our findings were as follows:



Fig 1: At Laparotomy, the Initial appearance: A cyst of the Spleen

As we opened the abdomen, we found a large mass covered by the Omentum. There was a Slight abdominal fluid with no obvious infection. There was no obvious bleeding or sites of bleeding areas. With these findings we could understand the Ultra sound scanning reports contradictions because of the effects of the large cysts on our patient.

Case Report



Fig 2: Small intestines shown

The small intestines were pushed downwards as the cyst became larger. The whole upper abdomen was occupied by the cyst from the spleen.



Fig 3: The extension of the large cyst

The Cyst arose from the spleen and as it expanded it pushed the spleen downwards and towards the lower area of the liver. (The Ultrasound confusion arose from the laparotomy findings). On the upper part of the cyst it spread toward the upper liver and the stomach. The Omentum from the transverse colon spread itself on the cyst and covered it. A splenectomy was only done after we drained the fluid from the cyst. Before this it was difficult to remove the spleen as there was no space to operate because the abdomen was fully covered by the cyst. We drained over five litres of coffee coloured fluids. After draining the fluid from the cyst we reduced the cystic mass and we were able to remove the mass and the spleen.

Case Report



Fig 4: Upper part of Liver in the cleared cyst

In terms of the liver, the patient was in a normal state. However the stomach was rather large. There was no evidence of any pylorstenosis. The rest of the abdomen was normal.



Fig 5: The area of removed cyst

The area which was occupied by the cyst was very large. The cyst was adherence to the diaphragm and the thoracic area tightly. Removing it could lead to bleeding. We felt it was not wise to peel it off and remove it. The wall of the cyst was also noted to be thick and hard on cutting it. It could be that the patient had this cyst for a long time. We closed the abdomen normally but we left two drains from the area of the occurrence of a cyst.

Case Report



Fig 6: The cyst attached to the spleen

The spleen was not very large. It was the cyst that was large. What was significant was the thickness of the lining of the Cyst. This Cyst was strongly adherent to the left diaphragm the left thoracic down to the 12th rib and then was attached to the spleen. It pushed the spleen towards the Liver. The stomach was also pushed towards the Liver.



Fig 7: The Cyst attached to the spleen

It can be seen that the cyst thickness was obvious.

Case Report



Fig8: Amount of fluid collected from the cyst

We suspected that more than 5 liters of coffee colored fluid was drained from the cyst.

The histology report showed a report that the patient had a spleen cyst which showed fibrotic changes with areas of hemorrhage and the presence of hemosiderin in certain areas.

The conclusion was that this was a case of Pseudo cyst of the Spleen cyst.

Discussion:

It is said that there are Type I and Type II cysts: The Type I cysts are said to be true primary cysts, they may have primary cysts with a cellular lining of parasitic appearance or non-parasitic appearance. The non-parasitic type I splenic cysts are themselves classified as congenital or neoplastic. Then there are Type II cysts: These are secondary cysts. They are said to be false. They are without a cellular lining. Most commonly they are found following a blunt trauma to the spleen [2]. We also have come to know that there are Non-parasitic Splenic Cysts (NPSCs) and these are uncommon lesions of the spleen, many are often reported in anecdotal publications. The classifications of this condition have been based on the presence or absence of an epithelial lining. This indicates either a congenital or a traumatic cyst [3]. It is believed that the non-parasitic cysts of the spleen are most common in Europe and North America and the spleen cysts with parasitic infection are more common in Africa and Central America. Generally, the reality incidence of splenic cysts is not common and because of this, there is no evidence-based management. It is believed that

the majority of splenic cysts occur as a result of parasitic infection, most commonly in countries where hydatid disease is endemic in countries as mentioned above. In the Western world, however, their occurrence is extremely rare and the etiology is less clear [4].

Our patient had a special occurrence. He denied any history of trauma. However, he was known as one who consumed a lot of alcohol. Our Histology report declined to show us that our patient had Parasitic Infection. We believe he probably was a victim of trauma and developed a post-traumatic splenic cyst. It is a fact also that some Splenic Cysts are also formed of the epidermoid cysts of the spleen; there is a rare lesion comprising less than 10% of benign, non-parasitic splenic cysts. Leon Morgenstern says the following "NPSC present as lesions with a very characteristic gross appearance and lining. The trabeculated interior can be lined with epidermoid, transitional, or mesothelial epithelium. Desquamation of the lining can lead to a spurious diagnosis, but careful search usually discloses the lining remnant".

Case Report

He goes on to supply another way of thinking about these NPSCs. He proposes a new classification of NPSC, based on the characteristic of gross findings; he says that NPSC is of congenital origin, with a lining derived from mesothelium. Leon Morgenstern believes that Trauma does not play a primary role in pathogenesis [3]. Our histology does not give us that detail so we find it difficult to think of mesothelium occurring in our patient. However other surgeons like Wu Hao M, John M.D, and Kortbeek B, say that splenic posttraumatic cysts also known as pseudocysts occur following trauma [8]. They are uncommon but they do occur. It is hard to ignore the two surgeons mind. In our patient, the findings are that he had a Pseudocyst.

In terms of general abdominal cysts, Macheras A, Misiakos EP, et al., say that the primary splenic cysts makeup 30 to 40% of the total and are more commonly in children and young adults [6]. Our patient was a 36year old man and this puts him in the youth group.

We have come to understand that Ultrasonography is the most cost-effective and least invasive method of evaluation to identify these lesions [10]. Ultrasonography of the upper abdomen can reveal a single unilocular spherical cystic mass in the anterior surface of the spleen. It is also known that Computerized tomography can confirm the ultrasound findings of a subcapsular cystic mass with an almost 10 cm of maximal diameter within the spleen with attenuation value near that of water. We found out that it is not always easy and it cannot always give out a simple diagnosis. It took us two Ultrasound studies before we made our diagnosis.

Conclusion:

It is believed that the splenic Cysts here are common and parasitic infection cysts. We encountered only one case and it was Non-parasitic. We could not confirm the classification as a primary (true, epithelial), lined by an epithelial cover (epidermoid, dermoid, and mesothelial) or endothelial cover (hemangioma,

lymphangioma), and secondary (pseudocysts, non-epithelial), which are usually of post-traumatic origin [6], but we believe our case was most likely a post-trauma cyst on the spleen.

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Case Report

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27