Splenic cyst in pregnancy: case report and literature review

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Abstract:

Splenic cysts are uncommon during pregnancy, with very few cases reported in literature. We describe the presentation and successful management of a case with review of the reported cases in the literature.

Keywords: Pregnancy, splenic cyst, surgery.

The occurrence of splenic cyst during pregnancy is uncommon with very few cases reported in literature.[1-13] They may be incidentally detected or can be symptomatic. Many types of splenic cyst have been documented in pregnancy like simple cyst, cystic spuria, echinococcal cyst and epidermoid cyst. Spontaneous rupture of the cyst can lead to high morbidity and mortality.[13] We describe a case of a large splenic cyst in pregnancy which was successfully managed and had a good maternal and fetal outcome.

Case

A 20 years old primigravida presented at 28 weeks of gestation with a 2 weeks history of fever and pain in left upper abdomen. Pain was subacute in onset and relieved partially by analgesics. On examination, she had fever of 100 ^{o}F, her weight was 42 kg, BP was 90/60 mm of Hg, pulse was 120 bpm, respiratory rate 24 breaths/min. Her cardiorespiratory examination was unremarkable. Per abdominal examination revealed a palpable lump in left hypochondrium with extension to epigastrium which was tender on examination. Laboratory results showed haemoglobin of 9.7 g/dl and total leukocyte count was 12,900/cumm. Workup for tropical fever, which included malaria, dengue, scrub typhus, leptospira and enteric fever was negative. She underwent ultrasound examination which showed presence of a fetus that was small for gestation with severe oligohydramnios and revealed a large cystic mass of 16x17 cm^2 in lesser sac. This was further evaluated by magnetic resonance imaging (figure 1) which demonstrated a 15.4×14.1×17.5 cm^3 splenic cystic lesion in upper pole of spleen without any septation, calcification or enhancement. There was no history of previous surgery, trauma or recent travel. Serum hydatid serology was done which was negative. Serum amylase and lipase estimation were within normal limits.

Given the patient's persistent symptom of pain, early satiety and inability to take adequate nutrition, presence of significant fetal growth restriction as well as the possibility of cyst rupture or infection in setting of pregnancy, general surgery opinion was taken for possible intervention. All options including drainage, fenestration,

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marsupialisation and splenectomy (partial vs complete) were considered pre-operatively and discussed with patient. Pre-operatively patient was given meningococcal, pneumococcal and influenza vaccines and dexamethasone was also given for fetal lung maturity.

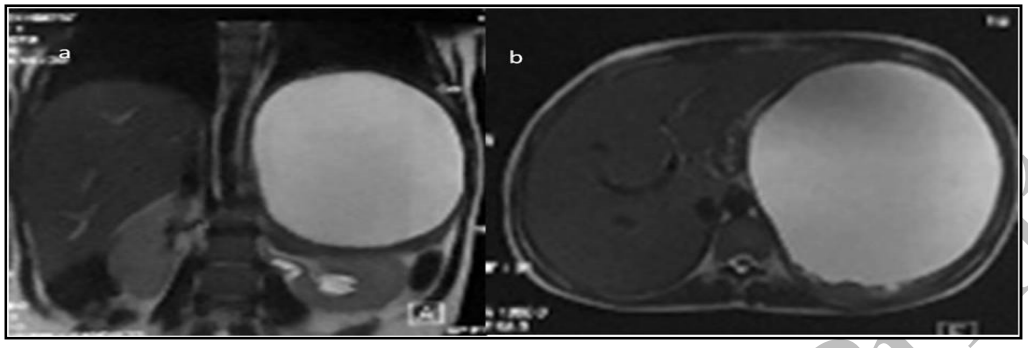

Figure 1: Coronal (a) and axial (b) T2w MRI images show presence of large cystic lesion in spleen.

The patient underwent laparotomy under general anaesthesia at 30 weeks of gestation. Intra-operative findings revealed an enlarged spleen with a cyst of 20x20 cm^2 at its upper pole, adherent to diaphragm and left lobe of liver. Cyst contained approximately 3-liters of dark serosanguinous fluid. Elective deroofing of splenic cyst with omentopexy was done. Cyst fluid was sent for culture, hydatid serology, malignant cytology and cyst wall was sent for histopathology examination. In the post operative period, patient had fever for 2-3 days which later subsided. Appetite gradually improved. Blood culture and splenic cyst aspirate collected were sterile, cytology for malignant cells was negative, hydatid serology was negative and histopathology was consistent with pseudocyst. Serial fetal monitoring was done, liquor started improving and fetal growth was observed. With strict fetal monitoring pregnancy progressed upto 37 weeks and decision for induction of labour was taken due to presence of significant fetal growth restriction. Patient delivered vaginally a live born boy of 1.8 kg (<3rd centile) with good Apgar score. Post partum period was uneventful. Both mother and baby were discharged on day 7 postpartum. Repeat ultrasound imaging at 6 months showed no residual cyst.

Discussion

Splenic cysts can be primary (parasitic, congenital or neoplastic) or secondary (pseudocyst).[13] Splenic cysts are uncommon pathologies as seen in previous large series.[14] These are divided into type 1 (primary) cysts, having an epithelial lining, and type II (pseudocysts) which are devoid of epithelial lining. Primary cysts can be parasitic or non-parasitic such as neoplastic, epidermoid and dermoid. Secondary cysts constitute majority of splenic cysts, and are mostly caused by trauma and infarction. [13] These cysts are mostly seen in young females who are frequently asymptomatic. Some patients can show symptoms like left upper abdominal pain and feeling of palpable lump.[1-13]

Splenic cysts are often detected incidentally on routine ultrasonography. Once detected, these can be further characterized on CT and MRI scans which can give insight into its contents, presence of septae, mural nodules, calcification and vascularity. However, only histopathology is the gold standard to differentiate various splenic cysts.[13]

We performed extensive literature search for all reported cases and found 13 cases with splenic cyst in pregnancy. Their finding including our case are summarized in table 1. Age of patients varied from 20 to 37 years. Two patients were diagnosed to have splenic cyst prior to getting pregnant [9,12], three patients were diagnosed in first trimester [3,6,8], eight in second trimester [1,4,5,7,10,11,13] and one in third trimester[2]. Most common presenting complaint was pain left hypochondrium in seven cases, vague lump in two cases, abdominal distension in two cases and they were asymptomatic in three cases.[1-13] Most of the cases showed size of cyst to be larger than 10 cm in size. Laparotomy and splenectomy was performed in eight cases [1-5,810,13], laparoscopic deroofing, resection and omentoplexy was done in three cases [6,12], laparoscopic splenectomy in two cases [9,11] and only aspiration with conservative management in one case [7]. In most cases the intervention was done in 2nd trimester. Most of the cases had shown good maternal and fetal outcome.[1-13]

Table 1: Summary of cases reporting management of splenic cyst in pregnancy

Studies	Clinical presentation	First diagnosed	Size of cyst	Intervention	Fetal outcome	HPE	Follow up
Elit et al 1989[1]	28 yrs female, Jaundice with incidenetal detected splenic cyst	28 weeks POG	13x11 cm cyst Calcification with intraluminal projections	Laparotomy splenectomy	32 weeks caesarean	Squamous cell carcinoma	Splenectomy
Bar-zohar et al1998[2]	22 yrs female	34 weeks	8x10 cm	Laparotomy splenectomy		Epider-moid cyst	Splenectomy
Menedez et al 2002[3]	Young female	7 weeks	Simple cyst spleen	Splenectomy in 2nd trimester		Hydatid cyst	Splenectomy
Can D et al 2003[4]	32yrs female Lump left abdomen	25 weeks	Splenic cyst	Laprotomy and splenectomy at 25 weeks	Vaginal delivery at 39 wks	Hydatid cyst	Splenectomy
Ceglowska A et al 2003[5]	Incidental detection	diagnosed in late pregnancy		Splenectomy 3 months post partum	Delivery by C. section	Cystic spuria	Splenectomy
Rotas M et al 2006[6]	23 yrs female epigastric pain and early satiety	At 9 weeks	17x13x15 cm exophytic cyst	Aspiration at 9 weeks, 2nd trimester aspiration followed by laparoscopic fenestration and omentopexy	Vaginal delivery at 38 wks	simple exophytic splenic cyst	Hypoechoic residual lesion 5 cm at 4 weeks follow up
Mahran MA et al 2010[7]	34yrs female Left upper abdomen and shoulder pain	24 weeks	20 cm cyst	analgesia, antibiotics and percutaneous aspiration at 26 weeks	Vaginal delivery at 40 wks	Coagulase negative staphylo-cocci sensitive to amoxiclav	Complete disappearance of cyst at 1 year follow up
Dabrowski et al 2012[8]	25 yrs female Left epigastric pain	Early first trimester	10 cm cyst Upper pole /hilum of spleen	Open total splenectomy 18 weeks	Vaginal delivery at 39 wks	Pseudocyst	Splenectomy
Majesky et al 2013[9]	25 yrs female Left upper quadrant pain and lump	Prior to pregnancy	Not mentioned	Laproscopic splenectomy	Normal delivery at term	Haemorr-hagic splenic cyst	Splenctomy
Forouzesh M et al 2013[10]	26 year female Left upper quadrant pain and tenderness	15 weeks	12x10 cm cyst 15 weeks	Laprotomy splenectomy at 16 weeks	N/A	Epider-moid cyst	Splenectomy
Varban O et al 2014[11]	27 yrs female Left flank pain and early satiety	18 weeks	11x11 cm complex multi-loculated cyst abutting splenic vessels	2nd trimester Laproscopic splenectomy	Delivered at term	Epider-moid cyst	Splenectomy
Kapp J et al 2016[12]	29 yrs female Pyelonephritis with incidental detection of splenic cyst	Diagnosed prior to pregnancy	15 cm type I cyst	2nd trimester laproscopic deroofing and resection of medial capsule	N/A	Primary splenic epithelial cyst	N/A
Chung P et al 2020[13]	37 yrs female Abdominal distension	25 weeks POG	29x 28 cm	34 week post partum laparotomy splenectomy	34 weeks CS	Epithelial cyst	Splenectomy
Present case	20 yrs female Left upper quadrant pain	28 weeks POG	17x 15 cm	Laproscopic deroofing and resection with omentoplexy	Vaginal delivery at 37 weeks	Pseudocyst	Disappear at 6 month follow up

There is still no consensus over the best management strategy for splenic cyst in pregnancy. As we can see, in majority of reports, total splenectomy was done. However these procedures are associated with greater operative morbidity and risks. There is also risk of opportunistic infections after splenectomy.[13] Minimal invasive approaches such as simple aspiration can result in recurrence and treatment failure.[6] Two cases have previously demonstrated

the effectiveness of organ sparing laparoscopic deroofing, resection and omentoplexy like our case, with good outcome.[6,12]

In our case, although the size of splenic cyst was large there was complete disappearance of cyst on follow up. We believe that trial of organ sparing procedure should be given before opting for total splenectomy in pregnant patients.

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