

# Splenic cyst in pregnancy: case report and literature review

Aruna Singh, Vanita Jain, Meenakshi Rohila, Cherring Tandup, Nethavath Venkana, Kim Vaiphei

Corresponding author: Dr Aruna Singh, Assistant professor, Department of Telemedicine, PGIMER, Chandigarh, India; Email: drarunavikas@gmail.com

Distributed under Attribution-Non Commercial – Share Alike 4.0 International (CC BY-NC-SA 4.0)

## 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.

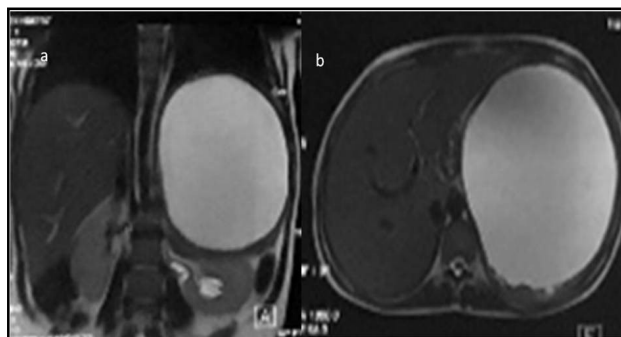
**Keywords:** Pregnancy, splenic cyst, surgery.

The occurrence of splenic cyst during pregnancy is uncommon with very few cases reported in literature.<sup>1-13</sup> 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.<sup>13</sup> 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 year 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 ° 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<sup>2</sup> in lesser sac. This was further evaluated by

magnetic resonance imaging (figure 1) which demonstrated a 15.4×14.1×17.5 cm<sup>3</sup> 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.



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

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, marsupialisation and splenectomy (partial vs complete) were considered pre-operatively and discussed with patient. Pre-operatively

Received: 24<sup>th</sup> June 2021, Peer review completed: 4<sup>th</sup> October 2021, Accepted: 10<sup>th</sup> October 2021.

Singh A, Jain V, Rohila M, Tandup C, Venkana N, Vaiphei K. Splenic cyst in pregnancy: case report and literature review. The New Indian Journal of OBGYN. 2024; 10(2): 453 - 56.

patient was given meningococcal, pneumococcal and influenza vaccines and dexamethasone was also given for fluid. Elective deroofting of splenic cyst with omentopexy was done. Cyst fluid was sent for culture, hydatid serology,

**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 <sup>1</sup>	28 yrs female, Jaundice with incidental 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 al 1998 <sup>2</sup>	22 yrs female	34 weeks	8x10 cm	Laparotomy splenectomy		Epidermoid cyst	Splenectomy
Mendez et al 2002 <sup>3</sup>	Young female	7 weeks	Simple cyst spleen	Splenectomy in 2 <sup>nd</sup> trimester		Hydatid cyst	Splenectomy
Can D et al 2003 <sup>4</sup>	32 yrs 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 <sup>5</sup>	Incidental detection	diagnosed in late pregnancy		Splenectomy 3 months post partum	Delivery by C. section	Cystic spuria	Splenectomy
Rotas M et al 2006 <sup>6</sup>	23 yrs female epigastric pain and early satiety	At 9 weeks	17x13x15 cm exophytic cyst	Aspiration at 9 weeks, 2 <sup>nd</sup> trimester aspiration followed by laparoscopic fenestration and omentopexy	Vaginal delivery at 38 wks	Simple exophytic splenic cyst	Hypochoic residual lesion 5 cm at 4 weeks follow up
Mahrn MA et al 2010 <sup>7</sup>	34 yrs 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 staphylococci sensitive to amoxiclav	Complete disappearance of cyst at 1 year follow up
Dabrowski et al 2012 <sup>8</sup>	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 <sup>9</sup>	25 yrs female Left upper quadrant pain and lump	Prior to pregnancy	Not mentioned	Laparoscopic splenectomy	Normal delivery at term	Haemorrhagic splenic cyst	Splenctomy
Forouzesh M et al 2013 <sup>10</sup>	26 year female Left upper quadrant pain and tenderness	15 weeks	12x10 cm cyst 15 weeks	Laparotomy splenectomy at 16 weeks	N/A	Epidermoid cyst	Splenectomy
Varban O et al 2014 <sup>11</sup>	27 yrs female Left flank pain and early satiety	18 weeks	11x11 cm complex multi-loculated cyst abutting splenic vessels	2 <sup>nd</sup> trimester Laparoscopic splenectomy	Delivered at term	Epidermoid cyst	Splenectomy
Kapp J et al 2016 <sup>12</sup>	29 yrs female Pyelonephritis with incidental detection of splenic cyst	Diagnosed prior to pregnancy	15 cm type I cyst	2 <sup>nd</sup> trimester laparoscopic deroofting and resection of medial capsule	N/A	Primary splenic epithelial cyst	N/A
Chung P et al 2020 <sup>13</sup>	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	Laparoscopic deroofting and resection with omentopexy	Vaginal delivery at 37 weeks	Pseudocyst	Disappear at 6 month follow up

fetal lung maturity.

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<sup>2</sup> at its upper pole, adherent to diaphragm and left lobe of liver. Cyst contained approximately 3-liters of dark serosanguinous

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 (<3<sup>rd</sup> 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).<sup>13</sup> Splenic cysts are uncommon pathologies as seen in previous large series.<sup>14</sup> These are divided into type I (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.<sup>13</sup> 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.<sup>1-13</sup>

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.<sup>13</sup>

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<sup>9,12</sup>, three patients were diagnosed in first trimester<sup>3,6,8</sup>, eight in second trimester<sup>1,4,5,7,10,11,13</sup> and one in third trimester<sup>2</sup>. 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.<sup>1-13</sup> Most of the cases showed size of cyst to be larger than 10 cm in size. Laparotomy and splenectomy were performed in eight cases<sup>1-5, 8, 10, 13</sup>, laparoscopic deroofing, resection and omentoplexy was done in three cases<sup>6,12</sup>, laparoscopic splenectomy in two cases<sup>9,11</sup> and only aspiration with conservative management in one case<sup>7</sup>. In most cases the intervention was done in 2<sup>nd</sup>

trimester. Most of the cases had shown good maternal and fetal outcome.<sup>1-13</sup>

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.<sup>13</sup> Minimal invasive approaches such as simple aspiration can result in recurrence and treatment failure.<sup>6</sup> Two cases have previously demonstrated the effectiveness of organ sparing laparoscopic deroofing, resection and omentoplexy like our case, with good outcome.<sup>6,12</sup>

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.

**Conflict of interest:** None. **Disclaimer:** Nil.

### References

1. Elit L, Aylward B. Splenic cyst carcinoma presenting in pregnancy. *Am J Hematol.* 1989; 32(1):57-60.
2. Bar-Zohar D, Sherer Y, Manor H, Peer A, Strauss S, Halevy A. Epidermoid cyst of the spleen. *Harefuah.* 1998; 134(3):182-5.
3. Menendez-Arzac R, Sanjuan A, Rebollo G, Marquez JC, Recinos EG, Cue A, et al. Splenic hydatid cyst. Case report of a pregnant woman. *Mexican J Gastroenterol.* 2002; 67(3):195-8.
4. Can D, Oztekin O, Oztekin O, Tinar S, Sancı M. Hepatic and splenic hydatid cyst during pregnancy: a case report. *Arch Gynecol Obstet.* 2003; 268(3): 239-40.
5. Ceglowska A. The course of a multipara's pregnancy, labour and puerperium complicated by spleen tumor. *Polish Gynaecol.* 2003; 74(8): 629-32.
6. Rotas M, Ossowski R, Lutchman G, Levgur M. Pregnancy complicated with a giant splenic cyst: a case report and review of the literature. *Arch Gynecol Obstet.* 2007; 275(4): 301-5.
7. Mahran MA, Bodley R, Farouk M, Ashworth F. Conservative management of gigantic splenic cyst during pregnancy; a differential diagnosis for chest pain caused by the forgotten organ. *Gynecol Surg.* 2010; 7(1): 49-51.
8. Dąbrowski W, Szczepanik A, Luterek K, Wielgoś M, Niedźwiedzka B. Management of a large splenic cyst in

- pregnancy—a case report. *Polish Gynaecol.* 2012; 83(11): 862-4.
9. Majesky I, Daniel I, Stefanikova Z, Skultety J, Koudelka P, Hutan M. Laparoscopic splenectomy in pregnancy—from contraindication to golden standard. *Int J Bratislava Med J.* 2013; 114(8): 484 - 7.
  10. Forouzesh M, Ghanbarzadegan L, Rahimi M, Ghahramani L. Splenic epidermoid cyst during pregnancy; case report and review of the literature. *Bull Emerg Trauma.* 2013; 1(4): 179.
  11. Varban O. Splenic cyst during pregnancy. *Int J Surg Case Rep.* 2014; 5(6): 315-8.
  12. Kapp J, Lewis T, Glasgow S, Khalil A, Anjum A. Spleen preserving management of a non-parasitic splenic cyst in pregnancy. *Ann Royal Coll Surgeons England.* 2016; 98(7): e114-7.
  13. Chung P, Swinson B, O'Rourke N, Schmidt B. Massive splenic cyst in pregnancy: case report. *BMC Pregnancy Childbirth.* 2020; 20(1): 273.
  14. Robbins FG, Yellin AE, Lingua RW, Craig JR, Turrill FL, Mikkelsen WP. Splenic epidermoid cysts. *Ann Surg.* 1978; 187(3): 23.
- 
- Aruna Singh <sup>1</sup>, Vanita Jain <sup>2</sup>, Meenakshi Rohila <sup>3</sup>, Cherring Tandup <sup>4</sup>, Nethavath Venkana <sup>5</sup>, Kim Vaiphei <sup>6</sup>**  
<sup>1</sup> Assistant professor, Department of Telemedicine, PGIMER, Chandigarh, India; <sup>2</sup> Professor, Department of obstetrics and gynaecology, PGIMER, Chandigarh, India; <sup>3</sup> Professor, Department of obstetrics and gynaecology, PGIMER, Chandigarh, India; <sup>4</sup> Assistant Professor, Department of General surgery, PGIMER, Chandigarh, India; <sup>5</sup> Junior Resident, Department of obstetrics and gynaecology, PGIMER, Chandigarh, India; <sup>6</sup> Professor, Department of Histopathology, PGIMER, Chandigarh, India.