CASE REPORT

Successful ultrasound-guided drainage of an intra-abdominal collection in late pregnancy

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SUMMARY

Pregnancy complicated by an intra-abdominal collection is uncommon and poses a challenge in the management. We present a case that illustrates successful treatment via ultrasound-guided drainage of a collection associated with a dermoid cyst in a 30 weeks pregnant patient presenting with fever and right-sided abdominal pain. Following treatment, the patient clinically improved rapidly. The drain was removed 3 days later and a repeat ultrasound scan showed no collection.

BACKGROUND

Limited literature is available on the management of intra-abdominal collections in pregnancy. Given the successful outcome from this case, the management strategy described is one that clinicians can employ as a treatment option if faced with similar presenting cases.

CASE PRESENTATION

A 31-year-old female, 30 weeks pregnant presented with a 3-day history of feeling generally unwell, fever and right-sided abdominal pain. The patient had previously been treated for a urinary tract infection with antibiotics. However, the symptoms worsened with nausea and vomiting. Her temperature was 38.9°C, however, haemodynamically stable. Examination findings revealed tenderness in the right flank. There was no guarding or rigidity. Her white cell count (WCC) was 16.1 and C-reactive protein (CRP) 183.6. All other blood investigations including amylase were all within normal limits.

INVESTIGATIONS

The patient had an ultrasound scan which revealed a 9×6 cm thick-walled collection containing avascular debris in the right hypocondrium/flank area. These features were suggestive of an appendicular abscess (figure 1). To further characterise the nature of the collection, an MRI was arranged the same day. No abnormal appendiceal structure was identified. However, there was a right ovarian lesion containing fat. This suggested a dermoid cyst (figure 2A and B).

DIFFERENTIAL DIAGNOSIS

- Dermoid cyst
- Ovarian torsion
- Appendicitis/appendicular abscess was ruled out by MRI.

TREATMENT

The patient was discussed with an interventional radiologist. The decision was made to drain the collection via ultrasound guidance. Under ultrasound guidance, an aspiration needle was advanced into the collection. Blood stained thick 'pus' was aspirated. A 10 French drain was subsequently sited which drained more than 70 mL of yellow/blood stained fluid and was aspirated to dryness. The drain was left in situ for further free drainage. The fluid was sent to pathology for further analysis.

OUTCOME AND FOLLOW-UP

The following day postdrain insertion, the patient was clinically feeling better and afebrile. Blood investigations showed a decrease in the WCC (11.0) and CRP (22.5). The drain was removed the next day and repeat ultrasound scan revealed no further collection. The patient recovered well and went on to deliver at term by an uncomplicated caesarean section. The dermoid cyst was found to be completely collapsed at caesarean section. During the postnatal period, the patient was symptom free and subsequently discharged with care instructions.

The cytology report concluded features consistent with a 'dermoid cyst'. There was no evidence of malignancy. All microbiology results (blood cultures, urine and the drained fluid) were negative. It is therefore likely that the dermoid cyst had ruptured and the leakage of sebum caused local peritonitis, responsible for the patient's symptoms.

Throughout admission, a multidisciplinary team approach involving the general surgeons, radiologists and gynaecologists made the patient feel at ease and reassured her that both she and her unborn child were being looked after.

DISCUSSION

The management of an intra-abdominal collection in pregnancy is uncommon and management can be challenging. Most literature available on this topic is case reports. We have described a fluid collection originating from a dermoid cyst. Other reported cases have included ovarian, pelvic, appendix, renal, psoas and iliacus abscesses. Risk factors depend on the source of collection and can include inflammatory bowel disease, pelvic inflammatory disease and chronic infections such as tuberculosis.¹⁻⁵

Ultrasound is a good first-line non-invasive study to investigate abdominal pain and can easily detect fluid collections. When difficult to examine patient or determine the nature of findings from ultrasound

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Figure 1 Ultrasound showing a fluid collection.

investigations, MRI would next be better to characterise any abnormalities. As with our case, the ultrasound suggested a possible appendix abscess that was indeed a dermoid cyst. While other case reports have mentioned the use of CT scans, we would not recommend this due to radiation exposure to both mother and fetus.⁶

Regarding the management of intra-abdominal collections in pregnancy, strategies vary among case reports/series available. This can include conservative management with antibiotics, radiological guided drainage and laparoscopic washout.^{2,5,6} There is currently no consensus regarding the best treatment option. Management is best guided by the clinical history and examination along with investigation findings. Rupture of an ovarian dermoid cyst in pregnancy is uncommon with limited cases reported in the literature. Dermoid contents leaking into the peritoneum can cause chemical peritonitis and stimulate uterine contractions which can lead to preterm labour; therefore, conservative management should be avoided.⁷ Diagnostic laparoscopy

is a debated topic in pregnancy. Two studies have shown laparoscopy to be safe with low preterm deliveries and no fetal loss.^{2,8} However, when considering appendicitis, preoperative imaging should be considered as there was a high rate of normal appendices.⁸ Our case highlights that radiological guided drainage is an effective mode to treat an intra-abdominal collection in late pregnancy. This can prevent the need for surgical intervention and the risks associated with anaesthesia and potential early fetal loss.¹ Situations where this may not be possible can be in the case of pelvic abscess where finding access may be difficult,¹ or if the patient is severely septic and interventional radiologists are unavailable, in which case surgery may be indicated.

Learning points

- The management of an intra-abdominal collection in pregnancy can be challenging.
- The use of MRI can better characterise findings from an ultrasound to better guide management.
- Ultrasound-guided drainage is safe and an effective management option and should be considered before surgery when facilities are available.
- A multidisciplinary team approach was necessary in this case to optimise care for both mother and her unborn child.

Contributors All authors listed in this case report have made significant contribution to this work with no conflict of interest. Main roles are listed below. JP: literature review, obtaining patient consent and initial draft. HPPS: literature review, editing initial draft. TH: main supervising consultant for this project, involved in deciding patient management and editing case report. MAH: carried out interventional procedure, selected appropriate images and wrote figure captions for this case study.

Competing interests None declared.

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Figure 2 (A) Fat suppressed axial sequence. Demonstrating round mass lesion adjacent to gravid uterus. Drop out of signal in the mass due to the presence of the fat. (B) T2W coronal sequence. Demonstrating round dermoid mass adjacent to gravid uterus with fluid surrounding it.

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