Laparoscopic excision of huge omental cyst in children

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Abstract

An omental cyst is a rare intra-abdominal mass in children which usually presents as progressive abdominal distension; it may or may not be associated with pain. In some cases it can present itself as an acute abdomen if the cyst undergoes torsion or rupture. Ultrasound of the abdomen still plays an important first line radiological imaging followed by computed tomography to give better visualisation of the cyst. Complete excision is the mainstay of treatment which can be achieved by either open or minimally invasive surgery. We report a case of a huge omental cyst in a child and describe its laparoscopic approach to obtain a complete successful excision of the mass.

Key words: Omental cyst, laparoscopy, children

1. Introduction

An omental cyst is an uncommon intra-abdominal mass in children which is usually benign in nature. Epidemiologically, the incidence of omental cysts accounted approximately for 1 in 140 000. The clinical presentation and findings commonly reveal palpable, soft and mobile per abdominal mass which can be further confirmed with radiological imaging. In the era of minimally invasive surgery, laparoscopic excision or laparoscopic assisted operation have become widely used due to their known advantages. In this report, we share a case of a huge omental cyst in a 2 year- old girl which was successfully excised laparoscopically. She had excellent post-operative recovery.

2. Case report

A previously healthy 2-year old girl was referred from a private hospital with painless abdominal distension for a 2-week duration. She was born uneventfully and had no post-natal issues. Together with the distension, the mother noticed she had been having upper respiratory tract symptoms (cough, fever, running nose). There was no history of abdominal pain, surgery or trauma. She was able to take food orally without vomiting but the amount she could take was much reduced than before; as such she had significant loss of weight of about one kilogram in the previous 2 weeks. She was able to pass motion as usual without any difficulty.

Clinically she appeared comfortable, not in pain. She had low grade fever but the other vital signs were normal. Abdominal examination revealed a palpable painless, soft abdominal mass measuring 10cm x 10cm occupying mostly the right hypochondrium down to the right iliac fossa. The mass was freely mobile in all directions and not ballotable. Laboratory studies showed an increase in C-reactive protein (3.92 mg/dL). The tumour markers, α-fetoprotein (3.77

ng/mL) and βhcg (<1.2 mIU/mL) were not raised.

The ultrasonographic (US) examination of the abdomen demonstrated a huge multi-loculated intra-abdominal cystic mass occupying the right mid and lower abdomen with the inferior border lying superior to the urinary bladder. The gall bladder and biliary trees were normal in size. Both normal ovaries and normal uterus were observed in the study. There was also no ascites. From the ultrasound, it could not be determined where the origin of the mass was. A CT of Abdomen was subsequently done. CT findings showed the presence of clear homogenous multi-loculated hypodense lesions measuring 10cm x 11cm. The superior border was in contact with the stomach, transverse colon, gall bladder and liver. It displaced the entire bowel to the left (Figure 1). There was no solid component, calcification or significant wall enhancement noted within the lesion. There was no significant para-aortic or abdominal lymphadenopathy seen. Overall findings were concluded as a huge cystic lesion arising either from the mesentery or omentum.

The patient was subjected to laparoscopic excision of the mass under general anaesthesia after consent was obtained from her parents.

Figure 1: The homogenous cyst is occupying almost the entire abdomen and pushing the bowel to the left side.

At surgery, the patient was put in the supine position. Under aseptic technique, a 6-mm camera Hasoon port was inserted via a supra-umbilical incision under direct vision. Intra-operative laparoscopy showed two lobulated cystic masses connected to each other by a narrow pedicle. Due to its huge size, we were unable to determine the origin of the lesion until 390 mls of haemorrhagic fluid was aspirated by using a femoral catheter percutaneously (Figure 2). The cystic fluid was sent for culture and biochemical investigation. The collapsed anterior wall of the cyst was then hitched to the anterior abdominal wall to aid the mobilisation of the entire cyst (Figure 3). Another four 3mm instruments were inserted to assist the procedure with port-free or direct technique. It was found that the cyst originated from the greater

omentum adhering to the stomach and the transverse colon. After mobilisation and dissection of the cyst from the surrounding intra-abdominal structures, the collapsed cyst was extracted out from the abdominal cavity via the supra-umbilical incision. The small wounds were closed using cyanoacrylate tissue-glue.

Figure 2: Percutaneous needle aspiration was done which drained 390 mls haemorrhagic fluid.

Figure 3: A hitch-stitch was created from the outside to provide the much needed retraction of the huge cyst to the anterior abdominal wall.

The patient was allowed food orally six hours post-operatively; she tolerated the feeds and was discharged home at post-operative day 2. She remained well and was seen at the out-patient clinic about a month later with no further issues, her appetite had returned and she had regained her normal weight. The histopathological examination of the specimen confirmed presence of a cyst wall composed of fibro-collagenous stroma devoid of epithelial lining with no evidence of atypical cells or malignancy.

3. Discussion

Omental cyst (OC) is a rare benign intra-abdominal mass in pediatric

population with the incidence of approximately 1 in 140 000.[1,2] The disease can occur at any age, but is most commonly reported in patients between 40 to 70 years of age and it is rare in children younger than 10 years old.[3] In most reported cases, males are more predominantly affected than females (M:F = 3.5:1) because of the higher accumulation of omental fat.[4] As for the embryology, it is well accepted that the theory behind it was proposed by Gross, who postulated that they were proliferation of ectopic lymphatic structures that lacked communication with the normal lymphatic system which caused the development of these benign masses.[5]

In most small cases of OC, they may go undiagnosed and asymptomatic until adulthood or due to incidental findings from other abdominal investigations. The most common presentation of OC, includes presence of abdominal mass or distension which may accidentally be picked up by the caretaker whilst examining the patient.[6] The other spectrum of clinical presentation of OC may depend on the location and size of the cyst. The cyst may undergo torsion which will give rise to acute abdominal pain, or other complications such as infection, intra-cystic haemorrhage or even ruptures and it's reported that 10% may present with acute abdomen.[1,2,6] As in our case, we suspected that the cyst had an underlying infection because of the development of fever with an increase in the inflammatory marker, and there was no abdominal tenderness to suggest acute torsion. A course of broad spectrum antibiotics was administered prior to the definitive surgery to reduce the infective response.

An initial ultrasonography of the abdominal cavity may give a good sensitivity and specificity in diagnosing OC.[1,2,6.] The lesion is frequently seen as unilocular / multiloculated with thin septation in between. In the presence of low level of internal echoes, haemorrhage / infected cyst need to be considered. The

aids of computed tomography may give additional information about the size, location, origin and involvement of the surrounding intra-abdominal / intra-pelvic structures and to rule out the other differential diagnosis such as gynaecological pathology, intestinal duplication and massive ascites. The displacement of the intra-abdominal structures (bowels) by a massive cyst is more appreciated and clearly demonstrated in the CT.

Simple drainage by radiological assistance alone is not a treatment option due to its high recurrence.[3] Complete excision of the mass remains the appropriate choice of treatment. Open surgery or minimally invasive surgery (MIS) is the choice of surgical excision depending on the availability of the service in the managing centre. There were a limited number of reported pediatric cases using laparoscopic/laparoscopy-assisted surgery. Based on the literature review, a total of 16 cases was managed via MIS; there was conversion in 3 of the cases due to the need for bowel resection and release of adhesion of the cyst to the inferior vena cava.[1]

In our case, because we aspirated the cystic content prior to the laparoscopic mobilisation and excision, as well as using a hitch stitch to assist holding the cyst, we managed to successfully achieve a complete excision laparoscopically. Worldwide, in about 10% of the cases, complete excision is not feasible. In such a case, a partial excision and marsupialisation of the remaining cyst into the abdominal cavity is the other option. The overall treatment outcome of this problem is favourable with reported recurrence rate from 0% to 13.6%.[7]

4. Conclusion

Huge omental cysts are a true pediatric surgical urgency. Laparoscopic excision should be the treatment of choice. Aspirating the cyst prior to laparoscopic mobilisation ensures that a huge cyst

becomes more manageable. Creation of the hitch stitch has added value during laparoscopic excision as it provides a control- retraction during dissection. Laparoscopic excision of an omental cyst, even in the case of a huge size-cyst, offers shorter hospital stay, reduced post-operative complications and better cosmesis.

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