

Simultaneous Omental Infarction and Acute Appendicitis in A Child

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SUMMARY

It is crucial to realize that both omental infarction and acute appendicitis can occur simultaneously in the children as both diseases are managed differently. Omental infarction itself is rare in the pediatric group, and its association with acute appendicitis is even rarer. Both diseases usually present with right sided abdominal pain. Ultrasound is the choice of imaging modality in the investigation of abdominal pain in the children. It should not be content if omental infarction is detected, whilst the normal appendix is not seen. We reported a case of simultaneous omental infarction and acute appendicitis in a child who presented with 3 days history of right sided abdominal pain. It was diagnosed pre-operatively by ultrasound. Prompt surgical intervention was proceeded and the child made uneventful recovery.

KEY WORDS:

Omental infarction; acute appendicitis

INTRODUCTION

Right sided abdominal pain is very common in the children. Ultrasound is the choice of imaging modality. Omental infarction is a rare clinical entity in the children. Conservative management is advocated. However it can occur simultaneously with acute appendicitis and alter the management plan. It needs to be aware that normal appendix should be visualized in the ultrasound study despite the presence of omental infarction.

CASE REPORT

A 7-year-old Indian girl with no known past medical history visited to our hospital in June 2013. Three days prior to that, she developed right sided abdominal pain, which was constant and progressive in nature. Nevertheless, she had no fever, apart from a few episodes of non-bilious non-bloody vomiting. The abdomen was not distended despite being no bowel output for the last four days. There was no right loin pain, dysuria or urinary frequency. Per rectal bleed was not noted. She had no recent trauma or travel.

On physical examination, vital signs were normal. She remained afebrile and was not toxic-looking. No subcutaneous bruises or abdominal distension was seen. No signs of peritonitis was evident, as well as negative Murphy's sign. Localized tenderness was elicited in the right iliac region. Bowel sound was present. Per rectal examination was unremarkable.

Blood investigations revealed a rise in CRP (42.6mg/L) and total white cell (11380/mm³), which constitute 76% neutrophil. Hemoglobin and platelet were unremarkable.

Subsequently, an ultrasound study was performed on the abdomen with high frequency probe. A cake-like echogenic mass was seen in between the anterior abdominal wall and colon (Figure 1), correspond to the infarcted omentum. The tip of appendix was swollen with periappendiceal inflammation. Neither intraluminal appendicolith nor periappendiceal collection was seen. Probe tenderness was elicited.

Laparoscopy was performed. A cake of omentum was noted to be infarcted, and adhered to the anterior abdominal wall (Figure 2a). The distal part of appendix was swollen. However, its base is healthy, and no perforation was shown. There were loose adhesions between the loops of small intestine. Appendix was removed, whilst the infarcted omentum (Figure 2b) was dissected off the anterior abdominal wall, and subsequently resected with bipolar forceps.

Histology showed patchy infiltrates of mixed inflammatory cells, comprising both acute and chronic inflammatory cells within the appendiceal wall, suggestive of subacute appendicitis. Hemorrhage, acute and chronic inflammation, granulation tissue formation, focal fat necrosis and mesothelial hyperplasia were seen in the adipose tissue of the omentum with no identifiable malignancy.

The patient made an uneventful recovery and was discharged well on post-operative day 2.

DISCUSSION

The causes of the right sided abdominal pain in pediatric patient can be divided into diseases that can be treated with medical care, and those in which emergency surgical intervention must be considered. Acute appendicitis is the most common surgically treatable disease in children, who present as right sided abdominal pain, whilst omental infarction is the rare disease in the children, which requires medical treatment.

It is common for omental infarction to be misdiagnosed as acute appendicitis pre-operatively. However it should be aware that both diseases can occur simultaneously. Up to date, there is merely one case report about the rare

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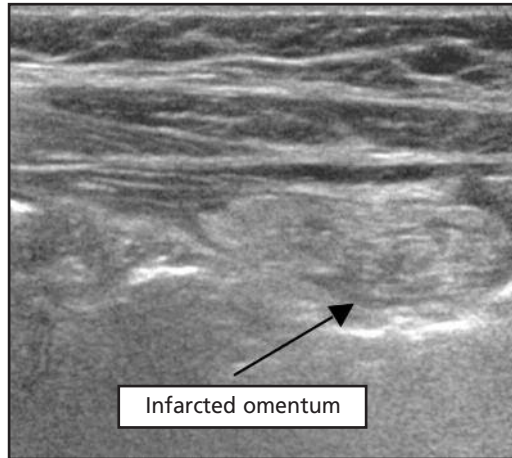


Fig. 1: Cake-like echogenic mass was seen between the anterior abdominal wall and colon which was concordant with omental infarction.

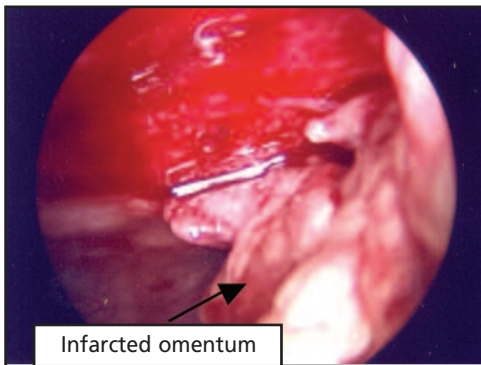


Fig. 2a: A cake of omentum was noted to be infarcted and adhered to the anterior abdominal wall.

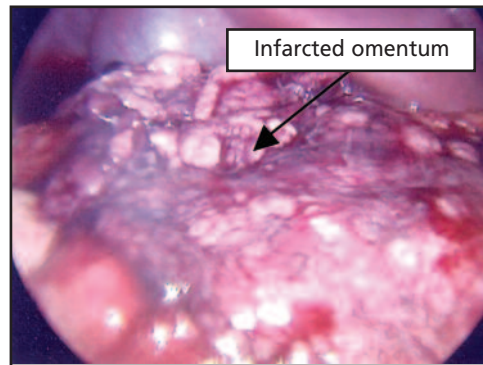


Fig. 2b: The infarcted omentum was dissected off the anterior abdominal wall.

association between omental infarction and acute appendicitis in the adult patient.¹

Diagnostic imaging plays a pivotal role in determining whether the disease should be surgically or medically treated, and if possible to get the exact diagnosis. In the pediatric patient, ultrasound is the imaging of choice as it avoids the risk of ionizing radiation. Furthermore, the high frequency ultrasound has higher spatial resolution than CT scan. It has the advantage of being dynamic and real-time study. It allows precise correlation of the findings with the area of maximum tenderness or with a palpable mass.

The appendix can be directly visualized by ultrasound. The inflamed appendix is recognized as a sausage-shaped and blind-ended structure on longitudinal images, and as a target lesion on transverse images. An appendix that is greater than 6 mm in diameter and noncompressible suggests acute appendicitis. Indistinctness of the layers, periappendiceal fluid collection and echogenic surrounding mesentery may also be shown.

The ultrasound identification of an ovoid or cake-like hyperechoic mass adherent to the peritoneum, and located in the umbilical region or anterolaterally to the right half of the colon, has been described as suggestive of omental infarction.

Omental infarction was first described by Bush in 1896. Park et al. reported that the male-to-female ratio was 2.58 : 1 and the mean age was 31.7 years. 32.6% of the cases occurred in children aged less than 15 years.² Hence, it is rare in the child and female.

The exact pathophysiology of omental infarction is unknown. It is postulated that congenitally anomalous fragile blood supply to the right lower portion of the greater omentum, which causes this region prone to infarction.³ Other suggestion⁴ is that a different embryonic origin for the right side of the greater omentum, with more fragile blood vessels which renders to elongation and secondary occlusions. Variations in blood supply to the right omental edge associated with obesity or trauma, overeating, hypercoagulability, coughing or a sudden change in position have been suggested as predisposing factors.³

Conservative management of omental infarction is advocated. A review of the English literature regarding conservative management of omental infarction was performed for the period from 1990 to 2010. Twenty-one relevant articles with a total of 64 patients were identified. The results demonstrate that non-operative treatment of omental infarction has been achieved in several series with successful outcomes.⁵

CONCLUSION

It is an infrequent association, but important for the clinician to be aware, that both omental infarction and acute appendicitis can occur simultaneously in the pediatric patient. Ultrasound is the preferred imaging tool in the investigation of the right sided abdominal pain in the children. One should always look for appendicitis despite diagnosing infarcted omentum. Missing appendicitis in the presence of ultrasound evidence of infarcted omentum is detrimental, as it will delay the surgery for acute appendicitis.

REFERENCES

1. Battaglia L, Belli F, Vannelli A, *et al*. Simultaneous idiopathic segmental infarction of the great omentum and acute appendicitis: a rare association. *World J Emerg Surg.* 2008; 3: 30.
2. Park TU, Oh JH, Chang II, *et al* Review Omental infarction: case series and review of the literature. *J Emerg Med.* 2012; 42: 149-54.
3. Sanchez J, Rosado R, Ramirez D, *et al*. Torsion of the greater omentum: treatment by laparoscopy. *Surg Laparosc Endosc Percutan Tech.* 2002; 12: 443-5.
4. Tolenaar PL, Blast TJ. Idiopathic segmental infarction of the omentum. *Br J Surg.* 1987; 74: 1182.
5. Ramawad Soobrah, Mohammad Badran, Simon G. Smith. Conservative Management of Segmental Infarction of the Greater Omentum: A Case Report and Review of Literature. *Case Rep Med.* 2010; 2010: 765389.