Pediatric omental infarction: Value of the laparoscope

Ian Robertson, Domhnall O'Connor, Waqar Khan, Kevin Barry

ABSTRACT

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CASE REPORT

An eight-year-old boy presented to the emergency department with a one-day history of progressive right iliac fossa pain, associated with anorexia but no nausea or vomiting. He was considered obese and weighed 48.6 kg. His vital signs were within normal limits. Clinical examination revealed marked abdominal tenderness in the right iliac fossa and suprapubic area. The patient had an elevated C-reactive protein (CRP) level at 6.1 mg/L. All other hematological and biochemical markers were within normal limits. A clinical diagnosis of acute appendicitis was therefore made and early surgical intervention was planned in the form of open appendicectomy.

At surgery, the appendix was not located in the right iliac fossa or right paracolic region. In order to discern the exact anatomical location of the appendix, conversion to laparoscopy was employed. A grossly normal appendix was subsequently visualized in the subhepatic space. An incidental finding of a portion of infarcted omentum was noted in the left upper quadrant (Figure 1). The portion of infarcted omentum was then excised laparoscopically. In addition, laparoscopic appendicectomy was performed in order to avoid future confusion regarding the presence of an open appendicectomy incision in the right iliac fossa.

Figure 1: Laparoscopic image demonstrating segment of infarcted omentum.

The patient made an uneventful postoperative recovery and was discharged three days later. Final histology reports confirmed a diagnosis of primary omental infarction and a normal appendix.

DISCUSSION

Omental infarction is a rare cause of right-sided abdominal pain, especially in the pediatric population. 0.1% of pediatric patients, undergoing surgery for suspected appendicitis, will prove to have omental infarction [1]. Omental infarction may be classified as primary or secondary. Primary infarction is considered idiopathic, such as in our patient, whereas secondary infarction is due to an underlying pathology, either local or systemic. Further associations have been reported between pediatric omental infarction and vasculitis [2]. Anatomical variations to the omentum may predispose pediatric patients to omental infarction in the post-prandial state [3]. Obesity has been implicated as a risk factor for primary omental infarction in children and the

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inflammatory effects of adipose tissue may also contribute to the pathogenesis of this condition [4]. Weights in excess of the 90th percentile have been reported in many such cases [2, 5]. In our case, the patient's weight was above the 97th percentile for his age (48.6 kg). Age and sex have both been studied and shown to have a causative association with omental infarction. Eighty five percent of all reported cases of omental infarction occur in adults, with a predominance in the 4th and 5th decades of life [3, 6]. Males have a 2:1 predominance over females and this may be due to an increased amount of fat in the male omentum [1, 5].

Omental infarction usually presents acutely with abdominal pain. It may mimic acute appendicitis. Prodromal symptoms such as nausea, vomiting or altered bowel habit are usually absent [7]. Preoperative imaging is required in order to definitively diagnose omental infarction in children. However, this may not be available in all centers. The two most effective imaging modalities are abdominal ultrasound and computed tomography. Omental infarction classically presents as a wedge/triangular shaped, non-compressible hyperechoic mass deep to the anterior abdominal wall on ultrasound. Recognition of omental infarction on ultrasound however is operator-dependent [2]. The sensitivity of ultrasound has been reported as 64% in the pediatric population [8]. While computed tomography is considered a more sensitive technique (up to 90%), issues regarding availability and concern for exposure to ionizing radiation in children may preclude its use. Should computed tomography be employed, the classical appearance of omental infarction consists of an area of hyperattenuation deep to the anterior abdominal wall. In children, the diagnosis of acute appendicitis is almost always clinically based and as such, imaging studies are rarely requested. For this reason, the diagnosis of omental infarction may prove elusive, as happened in this case.

If diagnosed preoperatively, omental infarction may be managed conservatively with appropriate analgesia. The condition is generally self-limiting and will resolve spontaneously with time. Van Kerkhove et al. note the rates of complications after omental infarction in children are clinically insignificant, describing them as "academic" [1]. Potential complications of omental infarction include adhesion formation and bowel obstruction. When diagnosed at the time of surgery, the infarcted omental segment can be removed. This is facilitated by the laparoscopic approach, as in our patient [6].

CONCLUSION

There have been relatively few cases of pediatric omental infarction published in the literature. Each newly reported case provides a unique learning opportunity. Omental infarction should be considered as part of the differential diagnosis for acute, right sided abdominal pain in children. While a conservative approach is the

preferred management option, preoperative imaging studies are not generally employed, particularly in circumstances where a clinical diagnosis of acute appendicitis has been made.

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Domhnall O'Connor – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Final approval of the version to be published

Waqar Khan – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Final approval of the version to be published

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Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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