

A case of blunt abdominal trauma and posttraumatic acute appendicitis

Künt abdominal travma ve postravmatik akut apandisit: Olgu sunumu

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Acute appendicitis and blunt abdominal trauma are common surgical emergencies. Whether there is a causative relationship between these two entities has long been a subject of debate. A twenty-one-year-old male Japanese tourist presented with vague abdominal pain and dysuria that began after he had been beaten and robbed. No signs of trauma were detected on physical examination; however, there were diffuse abdominal sensitivity with maximal tenderness in the hypogastrium and rebound tenderness in the right lower quadrant. Upon no improvement with medications within 24 hours, laparotomy was performed, which revealed an inflamed appendix, a few enlarged mesenteric lymph nodes, and free peritoneal fluid that was found to be sterile. Following appendectomy, the diagnosis was confirmed by pathologic examination and the enlargement of the lymph node was attributed to non-specific reactive hyperplasia. The patient had an uneventful postoperative course, with relief of pain and fever.

Key Words: Abdominal injuries; appendectomy; appendicitis; appendix.

Akut apandisit ve künt abdominal travma sık karşılaşılan durumlardır. İkisi arasında nedensellik ilişkisi bulunup bulunmadığı uzun zamandır tartışılan bir konudur. Yirmi bir yaşındaki erkek Japon turist, uğradığı saldırı ve soygundan sonra abdominal ağrı ve disüri ile başvurdu. Fizik muayenede herhangi bir travma bulgusuna rastlanmadı; ancak, en fazla hipogastriumda olmak üzere yaygın bir abdominal hassasiyet ve sağ alt kadranda rebound hassasiyet saptandı. Yirmi dört saatlik izleminde medikal tedaviden yarar görülmemesi üzerine laparotomi yapıldı. Apandistte enflamasyon, birkaç adet büyümüş mezenterik lenf nodu ve, daha sonra steril olduğu belirlenen, serbest peritoneal sıvı görüldü. Apandektomiden sonra, tanı patolojik incelemeyle doğrulandı ve lenf nodu büyümesinin non-spesifik reaktif hiperplaziye bağlı olduğu düşünüldü. Ameliyat sonrası dönemi sorunsuz geçiren hastanın ağrı ve ateş şikayetleri kalmadı.

Anahtar Sözcükler: Abdominal yaralanmalar; apandektomi; apandisit; apandiks.

Acute appendicitis (AA) is a common surgical disease. Although its dominant cause is thought to be luminal obstruction,^[1] less common causes include emotional stress^[2] and blunt abdominal trauma.^[3-5] We report a case of posttraumatic appendicitis and discuss possible pathogenetic mechanisms.

CASE REPORT

A twenty-one-year-old male Japanese tourist presented with vague abdominal pain and dysuria without concomitant diarrhea or vomiting. The symptoms began several hours before the previous night, after he had been beaten and robbed by a fellow tourist. There was no history or sign of any ill-

ness prior to this incident. Upon presentation, the blood pressure, pulse rate, and axilla temperature were measured as 130/80 mmHg, 80/min, and 38 °C, respectively. No signs of trauma were visible on physical examination; however, there were diffuse abdominal sensitivity with maximal tenderness in the hypogastrium and rebound tenderness in the right lower quadrant (RLQ). Rectal examination was indecisive. Laboratory investigation showed repeatedly a hematocrit value of 39%, white blood cell count was around 17,000/ml, and polymorphonuclears reached 90%. Serum biochemistry and urine analysis were normal. Chest and abdominal X-ray findings were inconclusive, so was ultra-

sound abdominal scanning except for some free peritoneal fluid mainly around the liver. After exclusion of any urogenital disease or trauma, the patient was admitted to the department and treated with intravenous cefamandole plus metronidazole and ranitidine. As no improvement was noted within 24 hours, laparotomy was performed, which revealed an inflamed appendix, a few enlarged mesenteric lymph nodes, and free peritoneal fluid that was found to be sterile. No fecalith, solid organ injury, bruising or hematoma of the mesentery or the mesoappendix were observed. Meckel's diverticulum was absent. Appendectomy was performed and a node was submitted to pathologic examination, whereby appendicitis was confirmed and the enlargement of the lymph node was attributed to non-specific reactive hyperplasia. The postoperative course was uneventful, with relief of pain and fever as well as normalization of laboratory findings in less than 48 hours. The patient was discharged healthy on the seventh postoperative day.

DISCUSSION

Differential diagnosis of acute abdominal pain with rebound tenderness in the RLQ is a common surgical entity. In our case, clinical suspicion led to laparotomy which was then justified by histologically confirmed AA.

The commonest cause of AA is obstruction of the appendiceal lumen usually due to hyperplastic lymphoid tissue or to a fecalith.^[1] We found no fecalith, but lymphoid hyperplasia was documented by histological examination. Bearing in mind that AA could have been a secondary phenomenon, we also did not rule out a possible primary cause.

As the prevalence of appendicitis is extremely low among Japanese tourists visiting Greece and having been subject to dietary changes, it was a very remote possibility that AA was associated with a dietary modification.^[6,7]

Yersiniosis or other microbial infections occasionally present as an "appendicular syndrome" and rarely induce appendicitis.^[8] However, operative and histological findings of the patient were inconsistent with this setting inasmuch as the peritoneal fluid cultures were sterile and the following antibiotic regimen was active against *Yersinia* spp.^[9] Thus, an etiologic role of a microbial infection seemed unlikely.

Blunt abdominal trauma has been proposed as a cause for AA^[3-5] and our case seems to substantiate this association.^[3] However, the lack of any injury to the appendix, the mesoappendix, and the mesentery excludes appendicular or vascular trauma as a primary cause of the inflammation. Rather, exposure to thrashing might have induced forceful movements of intestinal contents, resulting in subsequent luminal dilation and causing impairment in local defence mechanisms, with eventual development of lymphoid hyperplasia and luminal obstruction.

The activation of histamine-mediated vasomotor pathways decreases the blood flow and leads to posttraumatic acalculous cholecystitis.^[10] Although such a mechanism may play part in the pathogenesis of posttraumatic appendicitis, this was not the case in our patient because such a pathway was likely to be inhibited by the administration of H₂ antagonist treatment.

Emotional stress has also been associated with AA,^[2] with contribution to the multifactorial development of the disease. Our patient experienced a threatening event without doubt; however, the influence of his psychological state on the occurrence of AA remains obscure.

Both blunt abdominal trauma and AA are common entities, so the possibility of a coincidental accompaniment cannot be disregarded. Nor can a causal relationship. It would therefore be prudent to maintain a high level of suspicion during differential diagnosis of any abdominal complaints after blunt trauma and to implement a close supervision of the patient's clinical progress. Surgical intervention when indicated would probably decrease the morbidity of the condition and lead to the avoidance of associated medicolegal problems.

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