Introduction

Acute appendicitis is one of the most common acute surgical diseases that should not to be missed. The common presentation is right lower abdominal pain, but can manifest in a variety of ways. We often misdiagnosed, so ruptured appendicitis usually occurs. Ruptured appendicitis also carries a mortality rate 10 times greater than appendicitis alone.\(^{(1)}\)

All appendectomies are performed for suspecting appendicitis because of realizing in progression to rupture; 14% of cases have normal appendix, 70% of cases have an inflamed appendix, and 16% of cases have a ruptured appendix.\(^{(2)}\)

The incidence of atypical presentation of appendicitis ranged from 30-45%.\(^{(3)}\) Diagnosis of atypical presentation is usually missed or delayed in patients with atypical anatomy, children, the elderly, pregnancy, and patients with AIDS.

Case

A 27-year-old woman presented with three-day history of generalized mild abdominal pain. She described the pain initially as diffuse, intermittent, colicky and unaffected by food or movement. On the day she presented for evaluation, she has experienced the
onset of nausea, vomiting, and watery diarrhea. She was having more than 6 times of stool per day that were non-foul-smelling and without evidence of mucous bloody stool. She had fever at home. She denied dysuria, back pain or abnormal vaginal bleeding. She was sexually active only with her husband, denied any history of STDs and previous surgery. Other than that, her past medical history was unremarkable.

Her physical examination was remarkable for temperature of 38 °C, pulse rate 112/min, orthostatic hypotension (BP 120/80 mmHg on supine position, but BP 100/70 mmHg on upright position), generalized mild tenderness, some voluntary guarding at suprapubic area, no involuntary guarding, no rebound tenderness, negative Rovsing’s sign, and no costovertebral tenderness. Her rectal examination was unremarkable. The pelvic examination revealed no uterus and adnexa tenderness. Laboratory data included a white blood cell count of 15,000/mm3, and 85% of polymorphonuclear cell. Urinalysis revealed a white blood cell count of 5-10 cells, RBC 3-5 cells, but no bacteria detected. Urine pregnancy test was negative. The first impression was acute gastroenteritis, and the differential diagnoses were acute appendicitis, acute PID, and urinary tract infection. So the patient was observed progression of abdominal sign, made N.P.O., and performed imaging.

An abdominal ultrasound revealed that “adnexa and appendix are not visualized. Probable fluid collection in the right pelvic cavity. Better demonstrated on CT.”

A lower abdominal CT revealed a complex, separated collection measuring in 1.6*4.6*4.3 cm in the right pelvic cavity and small exudative fluid in the cul-de-sac.

The patient was admitted for IV ceftriaxone and metronidazole. She then agreed to proceed with an appendectomy.
Discussion

Firstly, general information about common clinical manifestations was reviewed. Before going through in depth detail of atypical presentations in special groups described above, there are

Classical manifestations.

Symptoms;

Classic symptom of acute appendicitis that initially centralized in umbilical area is moderately severe, and steady, sometimes intermittent cramping. After that, the pain localized in the right lower quadrant within 1 to 12 hours, usually 4 to 6 hours. Anorexia always accompanies appendicitis (about 90% of patients). Vomiting occurs in 75 % of patients, but it is usually tra10% of patients have transient and not prolonged obstipation or diarrhea before starting to feel abdominal pain.(4)

The sequences of symptom process a great differential diagnosis significance. Most of patients are affected by anorexia before experiencing an abdominal pain followed by vomiting. If vomiting precedes at the beginning of pain, the diagnosis should be questioned.

Physical signs;

- Vital signs are not often changed by uncomplicated appendicitis. Temperature is slightly elevated. (<38.5°C), pulse rate also normal or slightly increased. If there is greater changing of vital signs, it is probably assumed that complication has occurred or another diagnosis should be considered.
- Once the inflammation extends transmurally to the parietal peritoneum, the somatic pain fibers are stimulated and the pain localizes to McBurney point- exactly between an inch and a half and two inches from the anterior spinous process of the ileum on a straight line down from process to the umbilicus.
- As peritoneal irritation progresses, muscular rigidity increases and becomes largely involuntary.
- Other signs;

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<tr>
<th>Signs</th>
<th>Description</th>
<th>Associated Clinical Condition</th>
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<tr>
<td>Iliopsoas sign</td>
<td>-Elevation and extension of leg against pressure of examinier’s hand causes pain</td>
<td>-Retrocecal appendicitis in contact with psoas muscle</td>
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<tr>
<td>Obturator sign</td>
<td>-Flexion of right thigh at right angles to trunk and external rotation of same leg in supine position result in hypogastric pain</td>
<td>-Pelvic appendicitis in contact with obturator muscle</td>
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<tr>
<td>Roving’s sign</td>
<td>-Pain referred to McBurney point on application of pressure to descending colon</td>
<td>-Acute appendicitis</td>
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**Laboratory Findings;**

Mild leukocytosis (10,000-18,000/mm3) usually occurs in patient with uncomplicated appendicitis and it is often accompanied
by polymorphonuclear cell predominance. If normal white blood cell count and left shift not present, the diagnosis should be reconsidered. If the white blood cell count is greater than 18,000/mm³, the perforated appendix or abscess should be considered.

Urinalysis can be used to rule out the urinary tract as the source of infection. Although the white blood cell could present from bladder irritation in appendicitis, bacteriuria will not be seen in appendicitis.

**Appendicitis in patients with atypical anatomy**

Variations in the positions of the inflamed appendix produce variations from the usual presentations and physical findings.

When the appendix is located in pelvis, it may cause acute gastroenteritis, with diffuse pain, nausea, vomiting, and diarrhea as same as this case. Abdominal findings may be absent, and misdiagnosed unless rectal is examined.

When the appendix is retrocecal or behind the ileum, it may be separated from the anterior abdominal peritoneum. Abdominal localizing signs may be absent or causes flank or back pain. Irritation of adjacent structures cause diarrhea. In addition, it can cause urinary frequency, and testicular pain, from irritation of the spermatic artery and ureter.

A long appendix with the inflamed tip causes pain in that area. For example, It is in the left lower quadrant area causes pain in that area.
Malrotation is difficult to diagnosed because the somatic component is felt in that part of the abdomen where the cecum has been arrested in rotation.

**Appendicitis in children**

It could be difficult to diagnose appendicitis in children because of the inability of children to give accurate history, the frequency of gastrointestinal upset in children and the classic symptoms do not often present. The classic history is observed in fewer than 60% of patients. (5)

Children who are younger than 6 years with symptoms for more than 48 hours is much more likely to have a perforated appendix. Children under 8 years have a double increase in the rate of perforation as compared to older children. The increase of rapid progression to rupture and inability to contain a rupture leads to significant morbidity rates in children. (5)

**Appendicitis in the elderly**

Since the elderly diminish inflammatory response, they can present with less classic symptoms and physical signs, longer duration of symptoms, and decreased leukocytosis compared to younger patients. Perforation is more common, occurring in as many as 50% of patients over age 65. These patients may have cardiac, pulmonary, and renal conditions resulting in considerable morbidity and mortality from perforation. The mortality from perforated appendicitis in patients over age 80 was 21%. (6)

**Appendicitis during pregnancy**

Acute appendicitis is the most common surgical emergency in pregnancy. The incidence of appendicitis during pregnancy is 0.002 to 0.15 pregnancies. (7)
The gravid uterus displaces the appendix superiority and laterally toward the right lower quadrant so it causes complicating diagnosis. Separation of the visceral and parietal peritoneum due to enlarged uterus limits localization of the pain by decreasing somatic component of the pain. In addition, nausea and vomiting can be incorrect to morning sickness.

Fetal death rates reach 35% in the setting of perforation.(3)

Appendicitis in patients with AIDS

They commonly present initially with abdominal pain and gastrointestinal symptoms, similar to symptoms seen with common opportunistic intestinal infections like cryptosporidiosis, CMV colitis, MAC infection. Consequently acute appendicitis is difficult to be diagnosed. Some studies have shown perforation rate as high as 40%. (8)

Imaging for diagnosis

Appendicitis is clinically diagnosed with imaging used to confirm equivocal cases. The two most common modalities in use are abdominal computed tomography (CT) and abdominal ultrasound (US)

Firstly, this case was performed ultrasonography since it is fastest modality and useful for ruling out OB-GYN conditions. However, this has a limited result because it would be more difficult to identify a patient’s appendix. After that she was examined by CT that superior sensitivity and positive predictive value when compared with ultrasonography.

According to some studies (9), (10), (11), a recommendation for a equivocal case and the patient are not risky to take CT. This could be recommended to do CT for patient without ultrasound.
Conclusion

The physicians should be wary of possibility of acute appendicitis whenever a patient presents with abdominal pain, should maintain greater caution in patients with atypical anatomy, children, the elderly, during pregnancy, and AIDS patient.

References