Patient with a short history of lower abdominal pain, anorexia and fever

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Article Info

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Presentation of Case

Dr. Tazin Ahsan: A 60 year old lady from good socio-economic status was evaluated in the Emergency Department of the Ad-din Sakina Medical College, Jessore with moderately severe lower abdominal pain, marked anorexia, frequent vomiting, high fever with mild abdominal distension, constipation and burning sensation during micturation.

The patient was well until 2 weeks before the presentation to the hospital when she developed sudden onset of severe central abdominal pain associated with anorexia and vomiting. Short after, the pain shifted to the right iliac fossa. Later on, the fever developed which was continuous and not associated with chills and rigor. At the same time she noticed that food aggravated the abdominal pain and discomfort. She had no past history of hospitalization for any illness. She took medical advice from a registered graduate and got intravenous ceftriaxone 1 gm daily, paracetamol (tablet and suppository), intravenous omeprazole and got well within 3-5 days. Later she discontinued treatment. The patient is a housewife and mother of four children (all normal vaginal delivery) and over-weight (BMI – 26 kg/m^2), non-diabetic, non-hypertensive with adequate physical stamina.

On examination, in emergency room, the temperature was 102°F, pulse was 100 beat/min, regular, blood pressure was 130/80 mmHg and the respiration hurried. She was ill-looking and anxious. The cardiovascular, nervous, respiratory, genitourinary and musculoskeletal system were normal. Physical examination of the abdomen revealed tenderness in the right iliac fossa, maximum over McBurney's point,[1] with moderate sized lump which was not hard, and did not move with respiration. Rebound tenderness was present. Rovsing's sign and Psoas test[1] were positive. Abdomen slightly distended but rest of the abdomen was non-tender and the bowel sound was present. Food and straining increased the pain. No inguinal lymphadenopathy was detected. The attending physician sent the blood and urine for routine and biochemical investigations. The plain X-ray abdomen in erect posture (Figure 1) and ultrasonography of whole abdomen were done.

Dr. Tania Basher: There was a blind ended tubular hypo-echoic structure measuring 13 x 10 x 8 mm in the right iliac fossa with irregular thick margin which was continuous with the cecum. Omentum was thick and edematous around the lesion and a cystic SOL measuring 79 x 78 x 76 mm was noted in the right adnexal region with well-defined margin. Echogenic nodule casting acoustic shadow was noted within the cyst.

After evaluating the clinical data, physical findings and available investigation reports, the patient was admitted into the surgery ward. The registrar and the medical officer in charge of the ward started conservative treatment immediately on the basis of physical findings and investigations, and advised for CT scan of the whole abdomen.

Major Dr. Javed Mahfuz Khan: On CT scan, there was an ill-defined mixed density area measuring about 5.2 x 4.2 x 4.1 cm noted in the right iliac fossa. Mild fat stranding noted adjacent to the lesion. Post-contrast scan showed mild enhancement. A fairly large mixed density lesion measuring about 6.1 x 5.5 x 7.5 cm with a focus of calcification noted at the right adnexal region. Post-contrast scan showed no abnormal enhancement. No lymphadenopathy was found.

On the second day of admission, inspite of conservative treatment, the size of the lump increased, continued spiking pyrexia, increasing abdominal pain with rising pulse rate. The provisional diagnosis was appendicular abscess with right ovarian dermoid (incidental diagnosis).

Provisional Diagnosis

Appendicular abscess

Differential Diagnosis

Dr. S. M. Abu Ahsan: While constructing differential diagnosis, several features of the patient's

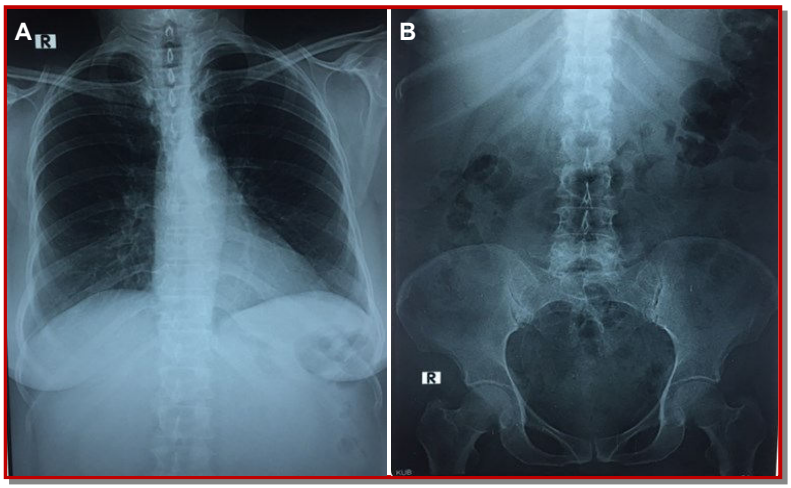

Figure 1: Chest x-ray in erect posture PA view shows no free gas shadow (A); X -ray KUB region (B)

presentation were considered. First, the illness developed suddenly within a short course of time which indicated an acute nature of the disease. After using antibiotics and analgesics the acuteness subsided and the patient improved. But, later on, after discontinuing the treatment, the symptoms reappeared, with the formation of lump in the right iliac fossa. Second, the right iliac fossa pain was spreading with high fever, marked anorexia, vomiting with slight abdo-minal distension. Finally, most of these presenting features point towards the diagnosis of appendi-cular abscess. So, after evaluating the patient, the following differential diagnoses were considered.

Carcinoma caecum

Carcinoma of the colon may occur at any age but usually encountered between the age of 50-80 years with a peak incidence in the 6th decade. It tends to grow larger in size (palpable mass) before produ-cing the clinical manifestations. It may be so large that patient develops superficial necrosis from ischemia and then chronic bleeding and anemia occur.[1, 5, 6] It may produce symptoms resembling upper abdominal pain and nausea. It shows chan-ges in bowel habit ranging from very slight to massive, either in terms of frequency, consistency, composition or shape of stool with unexplained weight loss. When dyspepsia dominates, the signs and symptoms point to inflammatory lesion of the appendix or ileocecal region[2-4, 8] but with the absence of change in bowel habit, marked anemia, weight loss, dyspnea on exertion, loss of interest and extreme lassitude go against the diagnosis of carcinoma colon.

Ovarian cyst (Mucinous cystadenoma)

Most of the time it remains asymptomatic. Some-times may be present with dull aching pain in the lower abdomen. At times they are big enough to fill the whole lower abdomen and produce gastro-intestinal symptoms like nausea and indigestion[2, 8] but with the absence of cystic feeling, free mobility from side to side and pulling of the mass per abdomen fails to move the cervix goes against the diagnosis of ovarian cyst.

Perforated peptic ulcer

In case of perforated peptic ulcer there is a history of dyspepsia and sudden onset of pain that starts in the epigastrium and passes downward along the right para-colic gutter. Free gas shadow seen under the right dome of diaphragm on plain X-ray chest/ abdomen in erect posture and rigidity and tender-ness in right hypochondrium.[1-3, 5, 6, 8] Absence of these features excludes the peptic ulcer disease.

Right sided acute pyelonephritis

In case of pyelonephritis, there is increased fre-quency of micturation, fever with rigor, tenderness confined to the right loin. Urine (routine and micros -copic) examination shows pyuria.[1, 6] These features are not present in this case.

Pelvic inflammatory disease

As the name indicates, it includes salphingitis, endometritis and tubo-ovarian sepsis. Pain mainly feel in the pelvic area and is usually bilateral. There is vaginal discharge, dysmenorrhoea and burning sensation in micturation.[1, 5, 6] All the features are absent in this case.

Diverticulitis

In case of long sigmoid loop, the colon lies to the right of the midline and in inflammation of the diverticulum, it is difficult to distinguish from appendicitis particularly in patients over 60.[1, 2, 5, 8] But it is extremely rare and CT scan is a useful mea-sure for differentiation.

Dr. Humayun Kabir: After analysis of the patient's features, laboratory reports (Table I) show increased white blood cell count with normal hemoglobin percentage and shifting of differential count to the left, indicating acutely inflamed appendicitis.[1, 5, 14, 15-17] Ultrasonography shows (Figure 2) a blind ended tubular structure hypoechogenic in nature, measur-ing 13 x 10 x 8 mm, noted in the right iliac fossa and irregular thick margin. It is continuous with the cecum, surrounded by thick and edematous omen-tum which is consistent with the appendicular mass. Another cystic swelling measuring 79 x 78 x 76 mm in the right adnexal region with well-defined margin. Echogenic nodules casting acoustic sha-dows within the cyst, and is consistent with der-moid cyst in the right ovary. CT scan (Figure 3) shows an ill-defined mixed density area measuring about 5.2 x 4.2 x 4.1 cm is noted in the right iliac fossa. Mild fat stranding is noted adjacent to the lesion. Post-contrast scan shows mild enhancement.

Table I

Laboratory investigations

Test	Result	Reference value
Hemoglobin	13.2 g/dL	F : 11.5 – 15.5 g/dL
ESR	45 mm in 1st hour	F : 0-20 mm in 1st hour
Total count of WBC	12.64 x 10^3/uL	4-11 x 10^3/uL
RBC	4.99 x 10^6/uL	3.9-5 x 10^6/uL
Platelet	334 x 10^3/uL	150-450 x 10^3/uL
Differential count:		
Neutrophil	71 %	50-70%
Lymphocyte	22%	20-40%
Monocyte	1%	2-8%
Eosinophil	5%	2-6%
Basophil	1%	0-1%
Serum creatinine	0.95 mg/dL	0.5-1.0 mg/dL
Random blood glucose	5.38 mmol/L	3.5-7.8 mmol/L
Serum electrolytes:		
Sodium	136 mmol/L	135-145 mmol/L
Potassium	3.85 mmol/L	3.5-5.5 mmol/L
Chloride	97 mmol/L	98-108 mmol/L
Serum bilirubin	0.5 mg/dL	Up to 1 mg/dL
Serum ALP	242 u/L	Up to 279 u/L
Serum ALT	37 u/L	Up to 40 u/L
Urine R/E:		
Albumin	Nil	
Sugar	Nil	
Pus cell	2-3/HPF	
Epithelial cell	6-7/HPF	
Red blood cell	Nil	
Cast	Nil	

Figure 2: Ultrasonography of the lower abdomen shows a blind ended tubular hypo-echoic structure measuring 13 mm x 10 mm x 8 mm in the right iliac fossa with irregular thick margin which is continuous with the caecum

It is consistent with the CT findings of appendicular mass. A fairly large mixed density lesion measuring about 6.1 x 5.5 x 7.5 cm with a focus of calcification is noted at the right adnexal region. Post-contrast scan shows no abnormal enhancement. It is consistent with right ovarian dermoid. No lymphadenopathies were noted both in the ultrasonography and CT scan findings. All the findings confirm the diagnosis of acutely inflamed appendix with periappendicular formation of lump and collection of inflammatory fluid (pus) within the lump and asymptomatic right ovarian dermoid.

Dr. T. Ahsan's Diagnosis

Appendicular abscess with right sided ovarian dermoid

Discussion

Dr. A. Ahsan: Vermiform appendix is a vestigial organ but its importance lies in case of surgery as it has propensity for inflammation and produces a clinical syndrome known as appendicitis.[1,5,8] The first textbook to give a description of appendicular inflammation and perforation was published by Bright and Addison in 1939. The typhlitis and perityphlitis (fatal inflammation of the cecal region) was used until the end of 19th century. It was Prof. Fitz, Department of Medicine at Harvard in 1886 gave a lucid and logical description of clinical features and described the pathological changes of the disease in details.[1,5] He was also the first to use the term appendicitis. Soon afterwards, Charles McBurney[2,8]

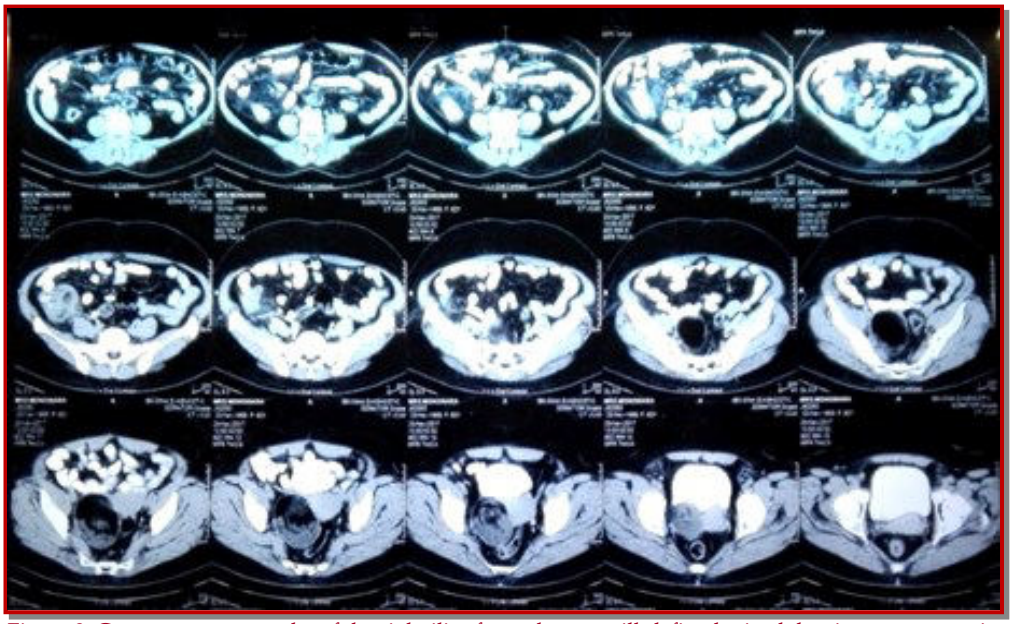

Figure 3: Computer tomography of the right iliac fossa shows an ill-defined mixed density area measuring about 5.2 cm x 4.2 cm x 4.1 cm

described the clinical manifestations of acute appendicitis including the maximum point of tenderness in the right iliac fossa, which now bears his name. Amyard, Surgeon of Westminster and St. Georges Hospital is the first man to perform appendicectomy.

There is no unifying hypothesis regarding the etiology of appendicitis. Decreased dietary fiber intake and increase consumption of the refined carbohydrate seem to be important.[1, 5, 6, 14] As with colonic diverticulitis, the incidence of appendicitis is lowest in people who take high dietary fibers.[15, 18, 20] In developing countries, who are taking more refined Western type diet, the incidence is high among them.[1]

Acute appendicitis is not associated with any specific bacterial, viral or, protozoal invasion. Obstruction in the appendicular lumen seems to be essential for the development of appendiceal gangrene and perforation.[1, 5, 6] Lymphoid hyperplasia causing narrowing of the lumen and thus luminal obstruction and inflammation take place. Once obstruction occurs, continued secretion of the mucous and inflammatory exudates increase the intra-luminal pressure as a result, edema and mucosal ulceration develop, which cause bacterial translocation to the submucosa. This stage is known as catarrhal appendicitis. This process doesn't usually proceed to the gangrene and may resolve spontaneously or after the use of antibiotics. If swelling in the lymphoid tissue of the appendicular wall causes obstruction to the lumen, it proceeds to obstructed appendicitis and gangrene. In addition, inflammatory lymphoid swelling may be due to kinks and adhesions from the congenital bands or from the episodes of inflammation, impaction by fecolith or foreign bodies like food debris, worm or gall stone.[16, 17, 20, 21]

Appendicitis undoubtedly creates the emergency situation in elderly patients. Peltokalio and Jauhianen (1970) showed that the clinical features of the patients having acute appendicitis aged more than 60 years are similar to those of younger age groups in pattern and duration of symptoms, the temperature change and the leucocytes response. Anderson and Bergdahl (1978) found that half of the 68 patients with acute appendicitis older than 60 years of age had perforations. Owens and Havit (1978) reviewed appendicectomy patients where they showed about three-quarters of their patients had ruptured appendix at the time of surgery.[7]

There are other problems we have to face in case of such elderly patients that there may be higher incidence of associated diseases that affects the general condition of the patients, there may be alternative causes of intra-abdominal emergencies and finally most of the elderly patients are less likely to complain of pain than the youngers and their stoic attitude is strongly in favor of delay in seeking surgical treatment.[2, 8-11]

Considering this pathogenesis of acute appendicitis, and investigation of the patient, with presence of another pathology in the right ovary, surgical removal of the appendix and toileting of the abscess with removal of the dermoid cyst were considered as the standard protocol.[3, 4, 7, 15] Thereafter, taking all preoperative preparations we did laparotomy along with a Gynecologist in the team by right lower paramedian incision.[4] Lump in the appendicular region separated gently, inflamed appendix with the abscess seen in retro-cecal position which was toileted and appendicectomy done with caution.

Gynecologist performed the tubo-oophorectomy to remove the dermoid.[3, 4, 7] Abdomen closed in layers with drain in the pelvis. Post-operative recovery was uneventful and the patient was discharged on 8th post-operative day with advice for follow-up visits.

Dr. Sumaia Shamsunnahar: Why should we not go for conservative treatment ?

Dr. Tasnia Jerin Jinia: Appendix mass may resolve on conservative treatment but in our patient the swelling was obviously increasing, pyrexia was striking, pulse rate gradually increased, which indicated that the inflammation is spreading. So to prevent generalized peritonitis, we took the decision for surgery.[13, 16, 26]

Dr. Nurunnahar Tanni: What should be the choice of antibiotics?

Dr. Tazin Ahsan: The bacterial components of gangrenous or perforated appendix is a mixed inoculums of aerobic and anaerobic organisms with synergistic effects between this two groups.[6] So best results are obtained using broad spectrum antibiotic against the aerobes along with metronidazole for the anaerobes. According to the study done by Sario et al[8] (1983), combination of cefuroxime and metronidazole is the choice of antibiotic.[20-24]

Dr. Ismat Jahan: What are the ideal criteria for the diagnosis of a case of acute appendicitis ?

Dr. A. Ahsan: The diagnosis of acute appendicitis is almost on the basis of clinical findings. A number of clinical and laboratory-based scoring system have been devised to assess the diagnosis. This is Alvarado score.[1, 5, 6, 8, 13, 14, 25, 26] Score 7 or more is strongly suggestive for acute appendicitis.

Dr. Monira Khatun: Is ultrasonography and CT scan routinely done for the diagnosis of appendicitis?

Dr. A. Ahsan: Decision for appendicectomy based on the clinical suspicion alone can lead to the removal of a normal appendix in 15-30% of cases. So, patients with an equivocal Alvarado Score (5-6), abdominal ultrasonography and/or contrast enhanced CT examination reduce the rate of negative appendicectomy. Ultrasonography is more helpful for differentiating gynecological pathology with more diagnostic accuracy. Contrast enhanced CT is very much helpful when diagnostic uncertainty for neoplasm, particularly in case of older patients. Selective use of CT also may become cost-effective by reducing both the negative appendicectomies and length of hospital stays, but it doesn't have a place as a routine investigation.[12, 25]

Dr. Mahzabin Myesha: Is it possible to develop appendicular mass or localized abscess without the evidence of generalized peritonitis?

Dr. T. Ahsan : Yes. It is possible. Before development of appendicular mass or abscess, rupture of the appendix is essential and it may occur at any spot, commonly along the anti-mesentric border and peritonitis develop. When the peritonitis will be localized or when it will be generalized, depend on many factors like age of the patient, virulence of the invading organism, the rate at which the inflammation proceeds and the position of the appendix.[18, 19] Retro-cecal or pelvic variety[1, 5, 32-34] is more likely to develop local abscess and the perforated appendix is walled off by surrounding structures into an abscess. So, remaining of the abdomen will be soft with no evidence generalized peritonitis.

Dr. Nurunnahar Tanni: Is it a genetically determined disease?

Dr. A. Ahsan: No. The disease is determined environmentally rather than genetically. It is undoubtedly common among the meat eating white races and relatively rare in those who are habituated with bulk cellulose diet. Unexplained variations may also be found.[1, 5, 6]

Dr. Sharar Ahsan: Is there any scope for histopathological confirmation of diagnosis ?

Dr. A. Ahsan: Yes. After appendicectomy and tubo-oophorectomy, we have sent both of the samples for histopathological examination.

Dr. Md Shahadat Hossain: On histopathological examination, there was an ovarian mass, a dermoid cyst lined by stratified squamous epithelium. The wall contained other skin adnexal structures. Appendicular specimen showed vermiform appendix with a luminal fecolith and few neutrophils in the muscle coat. No malignancy was seen.

Dr. Myesha: Is there any role of laparoscopy in case like this?

Dr. A. Ahsan: Laparoscopic method may be chosen to treat acute appendicitis and its complications but in this case, considering the general condition of the patient, extent of the lump formation and presence of an additional pathology, open surgery was considered more feasible.[27-31]

Final Diagnosis

Appendicular abscess with right ovarian dermoid

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