

Complicated acute appendicitis in a patient with Type 2 Diabetes: a case report

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ABSTRACT

Background: Acute appendicitis usually presents atypically in extremes of ages and can be associated with complications like perforation especially in the elderly and immunocompromised people.

Case Presentation: We describe the case of an elderly lady with type 2 diabetes, on long-term steroids for Sheehan's syndrome. She was found to have complicated acute appendicitis that was ultimately treated with appendicectomy.

Conclusion: Appendicitis can manifest atypically and can be complicated in the elderly and immunocompromised individuals like patients with diabetes. It should always be kept in the differentials of right iliac fossa pain.

Keywords: Diabetes, CAA (Complicated Acute Appendicitis), old age, case report.

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Background

In 1928, Leland and McKittrick stated in a book on diabetic surgery that “acute appendicitis is especially dangerous in a diabetic because the symptoms and signs may be obscure, the diagnosis difficult and the treatment late.” Appendicitis in old age and immunocompromised people can present atypically with vague abdominal pain. It can get more complicated due to the delayed diagnosis.

In patients with diabetes, the clear-cut features and the complications of appendicitis like perforation may remain undiscovered due to the presence of gastrointestinal autonomic neuropathy, altered central processing of visceral stimuli and increased sensory threshold of pain. Besides these, many patients with chronic diabetes already have the microvascular disease and visceral ischemia, all of which contribute to delayed presentation, complications like appendiceal perforation and increased morbidity and mortality [1].

Acute appendicitis has been shown to be linked with extremes of ages, more amongst males, with Hispanic ethnicity and patients with limited English proficiency in the US and patients with diabetes [1]. A study from Taiwan recently demonstrated a higher rate of appendiceal perforation in people with diabetes, as compared to those without diabetes (46.2% vs. 28.3% with an odds ratio of 1.35). The same study showed that non-surgical management of appendicitis in patients with diabetes may carry high failure rates [1].

We report a case of an elderly woman with uncontrolled diabetes who was diagnosed to have appendicular

perforation and abscess and was ultimately managed with appendicectomy.

The purpose of presenting the case is to reiterate the significance of keeping a high index of suspicion of acute appendicitis and its complications in any old-aged patient with diabetes presenting with abdominal pain. There is scant evidence in literature on this topic, especially from Middle East.

Case Presentation

A 73-year-old post-menopausal lady was admitted to the in-patient department for the workup of right lower abdominal pain, nausea, and fever with chills for about 1 month. She had type 2 diabetes (>20 yrs), hypertension, Sheehan's syndrome, and previous history of right femur fracture.

The patient had been discharged from another local hospital four days before the admission. She was diagnosed to have computerized tomography (CT)-proven pelvic abscess, along with urinary tract infection, which was treated with antibiotics only. The systemic review was unremarkable apart from anorexia and undocumented weight loss. She was on Glibenclamide 5 mg/d, Metformin 500 mg BD, Levothyroxine 50 µg/d, Prednisolone, 5 mg/d, Losartan 50 mg/d, Amlodipine 5 mg/d, Simvastatin 20 mg HS, and Multivitamin, once/d. On examination, the patient was an elderly woman of medium stature, with no apparent distress. She was fully conscious and co-operative, body temperature 36.5°C, BP 123/66 mmHg with no postural

drop, pulse 86/m, regular, RR 21/m, O₂sat 97% on room air, and weight 48.7 kg. General examination was unremarkable including thyroid and jugular venous pressure. The abdomen was soft with mild, deep tenderness in the right iliac fossa. McBurney's tenderness was absent. There was no visceromegaly and gut sounds were normal. The cardiovascular exam showed a loud P2 and an early diastolic murmur in the aortic areas. Bilateral carotid bruits were present. Rest of the systemic exam was essentially normal.

Her lab results were as follows: CBC (Hb 10 g/dl, normochromic, normocytic, TLC-11,000/mm³), ESR 54 mm/1st hour, HbA1c 9.6%. Renal, liver, and thyroid functions were normal. Urinalysis was normal.

The chest radiogram showed an enlarged cardiac shadow with bilateral perihilar congestion and exaggerated bronchovascular markings and bilateral atelectatic changes. Thyroid ultrasound (U/S) was suggestive of multi-nodular goiter. ECG was normal. Echocardiogram showed mild to moderate aortic regurgitation. There was no vegetation. U/S and CT Abdomen (Figures 1 and 2) revealed a multi-loculated collection in the right peri-appendicular and adnexal areas, suggestive of concealed appendicular perforation and appendicolith. A calcified uterine cyst and osteoporosis with wedge fracture at the L1 level, along with atherosclerotic changes, were also observed.

Our patient was referred to the surgical service, who initially treated her conservatively with systemic antibiotics and later on underwent uncomplicated elective appendicectomy. The patient got fully recovered afterward.

Discussion

In the elderly (above 65 years of age), every year, 1 in 2000 develops appendicitis. They are more predisposed to appendicular perforation [3] due to the delayed diagnosis and medical care. Blunted immunological response and the presence of other co-morbidities enhance their perforation risk [3,4].

The pathogenesis of acute appendicitis involves initial inflammation of the appendiceal wall, followed by

localized ischemia, perforation, and the development of a localized abscess or generalized peritonitis [5].

The patients with perforated acute appendicitis may present with localized or diffuse abdominal pain, fever, vomiting, and consequent electrolyte disturbances. The unusual manifestations include pylephlebitis, enterocutaneous fistula, small bowel obstruction, liver abscess, or retroperitoneal abscess.

The increase in complicated acute appendicitis amongst people with diabetes is multi-factorial. Delayed diagnosis, poor renal function, along with the previous history of diabetic nephropathy are common risk factors for complicated appendicitis [6].

Delayed gastric emptying, altered small or large bowel motility, gastroparesis and ketoacidosis in diabetic patients can masquerade the picture of acute appendicitis. Sensory and autonomic neuropathies and hyperglycemia in such patients may also contribute to prehospital and post-hospital delays and high wound infection rate post-appendectomy, respectively [6].

Recently, it was reported that diabetes was associated with appendectomy in cases of uncomplicated appendicitis being treated with antibiotics [7]. Another study showed that diabetes presented 3 years after appendectomy for complicated appendicitis [8].

Conclusion

Abdominal pain in the elderly should be taken seriously, especially in the presence of co-morbid like diabetes. There should be a low threshold for this possibility, to avoid delayed diagnosis and sequelae, e.g., perforation.

Acknowledgement

None

List of Abbreviations

CT Computerized tomography
U/S Ultrasound

Consent for publication

Informed consent was obtained from the patient to publish this case report in a medical journal.



Figure 1. CT abdomen (coronal section) multi-loculated collection in the right peri-appendicular and adnexal areas, suggestive of concealed appendicular perforation and appendicolith.



Figure 2. CT abdomen (sagittal section) multi-loculated collection in the right peri-appendicular and adnexal areas, suggestive of concealed appendicular perforation and appendicolith.

Ethical approval

Not applicable.

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Summary of the case

Patient (gender, age)	1	Female,73 years
Final Diagnosis	2	Acute appendicitis with perforation and abscess formation
Symptoms	3	Abdominal pain, nausea, fever
Medications	4	Glibenclamide 5 mg/d, Metformin 500 mg BD, Levothyroxine 50 mcg/d, Prednisolone 5 mg/d, Amlodipine 5 mg/d, Simvastatin 20 mg HS, and Multivitamin, once daily
Clinical Procedure	5	Appendicectomy
Specialty	6	Internal Medicine, Diabetology