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Case Report

Appendiceal Complex Cystic Mass Most Likely a Mucocele in a Young Male: The Ultrasonographic Features and Case Report

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Abstract: Appendicular mucocele is defined as an obstructive dilatation of the appendix caused by intraluminal accumulation of mucoid material. It has an incidence of 0.2-0.3%, commonly seen in females and individuals more than 50-years of age. A 25-year-old male was referred from a peripheral healthcare facility for an abdominal and pelvic ultrasound scan on account of recurrent episodes of lower right quadrant (iliac-region) pain and discomfort. The ultrasound scan demonstrated tenderness with sonographic probe pressure over the right iliac region, a blind ending tubular structure with dilated central lumen (dilated appendix), a linear echogenic structure casting posterior acoustic shadow and causing luminal obstruction within the appendix. An oval cystic area measuring about 18mm in widest diameter with echogenic walls, internal echoes and mixed echo material forming a circumferential rim in the innermost aspect of the cystic area, this is most likely the mucocele. A mixed echo material is also noted clogging the lumen of the appendix before the cystic mass. A diagnosis of acute appendicitis coexisting with features of a complex cystic mass most likely a mucocele. We present the ultrasonographic features of acute appendicitis coexisting with a complex cystic mass most likely a mucocele in a 25-year-old male patient.

Keywords: Mucocele, Appendicitis, Iliac-Fossa, Tenderness.

INTRODUCTION

Appendiceal mucocele is defined as an obstructive dilatation of the appendix caused by intraluminal accumulation of mucoid material. This entity is rare with an incidence of about 0.2-0.7% of appendectomied specimens [1-3].

Mucocele commonly arises from epithelial proliferation; this could either be benign or malignant. Though mucocele may occasionally be from an inflammatory or obstructive cause, which could either be from appendicitis and obstruction by a fecalith or appendicolith[4].

Appendicular mucocele is rare with non-specific symptoms, mimicking several common diseases, and often detected as an incidental finding during surgery, radiological investigations or endoscopic examination [5, 6].

Histologically, appendiceal mucocele have been categorized in to four types, basically these are: retention mucinous cyst, mucosal hyperplasia, mucinous cystadenoma and mucinous cystadenocarcinoma [1, 2, 6].

Almost half of the cases of appendiceal mucoceles are mucinous cystadenoma, most of which are often treated by appendectomy alone, although careful exploratory laparotomy for mucinous peritoneal adhesions to prevent pseudomyxoma is also done [7].

Prognosis of patients with non-neoplastic mucocele (simple mucocele and mucosal

hyperplasia) and benign neoplastic mucocele (mucinous cystadenoma) is excellent with a five-year survival rate of 91-100%, while the malignant mucocele (mucinous cystadenocarcinoma) have a five-year survival rate of only 20-50% [8, 9].

Appendicitis and appendiceal mucocele are often difficult to differentiate, but may occasionally coexist, though an outer diameter of 15mm or more may be in favor of a mucocele of the appendix having a sensitivity of about 83% and specificity of 92% [10,11].

The clinical entity can be an incidental finding at surgery or imaging, clinically, the presentations of mucocele are pain in the right lower quadrant mimicking appendicitis in about 45% of cases, lower abdominal mass, bowel obstruction, anemia, weight loss, and chronic abdominal pain [12-15].

Imaging plays vital role in detecting appendiceal masses, mucocele inclusive, the radiologic imaging modalities are mainly plain radiography, ultrasonography and computed tomography of the abdomen [16, 17].

In the literature, appendiceal mucocele had been described in various sonographic patterns, these are; a typical cystic structure with thin walls, cyst with internal echoes and septations in the most dependent portion with associated acoustic shadowing, and a complex mass with acoustic enhancement [17-19].

The treatment for appendiceal mucocele is mainly surgical resection; this varies from simple appendectomy (open and laparoscopic forms) to right hemicolectomy with lymph node dissection depending on their malignancy [6, 20, 21].

Case Report

A 25-year-old male was referred from a peripheral healthcare facility for an abdominal and pelvic ultrasound scan on account of recurrent episodes of lower right quadrant(iliac-region) pain and discomfort for more than a month duration.

The patient appears stable, conscious and alert, not in obvious painful or respiratory distress, not pale, not jaundiced, not dehydrated, no finger clubbing, had tenderness over the right iliac region. The blood pressure was 110/65mmHg; pulse rate was 72beats per minute, respiratory rate was 14 cycles per minute.

The packed cell volume was 35%, he had elevated white blood cell count of about 13500/m^3, the erythrocyte sedimentation rate was 8mm/hr. The blood electrolyte was normal, blood urea was normal (3.5mmol/L) and the blood creatinine was also normal (76mmol/L).

The ultrasound scan demonstrated tenderness with sonographic probe pressure over the right iliac region, there was a blind-ending tubular structure (appendix) measuring about 39mm x 11mm in mediolateral and craniocaudal dimensions, has a with dilated central lumen, a linear echogenic structure measuring about 14.4mm in mediolateral dimension, casting posterior acoustic shadow and causing luminal obstruction (figures 1&2). An oval cystic area measuring about 18mm in widest diameter with echogenic walls, internal echoes and mixed echo material forming a circumferential rim in the innermost aspect of the cystic area, this is most likely the mucocele (figures1-3). A mixed echo material is also noted clogging the lumen of the appendix before the cystic mass (figures 1&2). The remaining abdominal organs appeared normal.

A diagnosis of acute appendicitis coexisting with features of a complex cystic mass most likely a mucocele (simple mucocele/retention cyst).

The patient objected to surgical management currently, he however was placed on analgesia and antibiotics until he is ready for the surgical treatment and hence histopathologic assessment of the specimen for confirmation of the nature of the cystic mass.

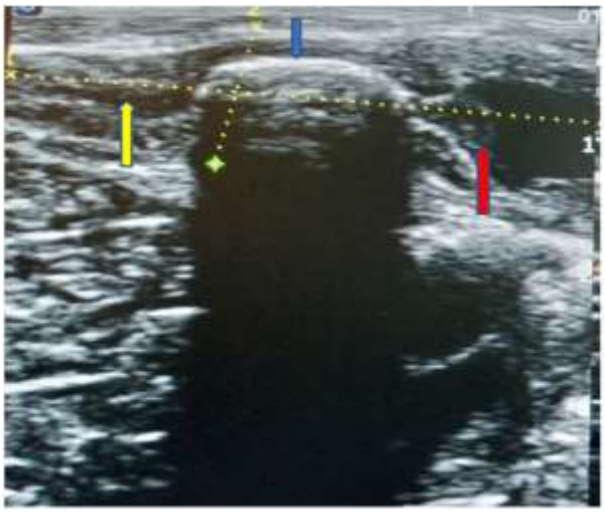

Fig-1: Abdominopelvic ultrasonogram, demonstrating a dilated appendiceal lumen (yellow up-arrow), an echogenic curvilinear structure; appendicolith casting marked posterior acoustic shadow (blue down-arrow), and a mixed echo material clogging the lumen of the appendix with a dilated cystic mass (red up-arrow)

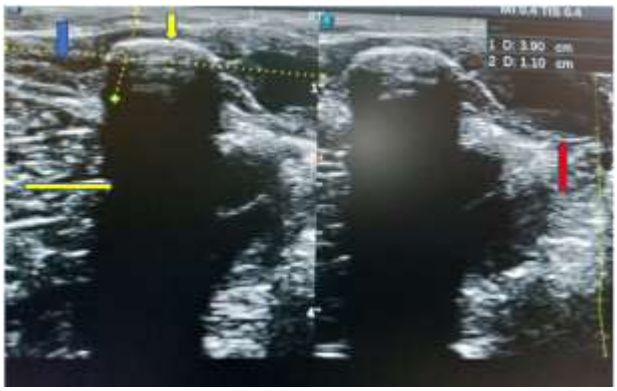

Fig-2: Abdominopelvic ultrasonograms, the left image demonstrates a dilated appendiceal lumen (blue down-arrow), an echogenic curvilinear structure; appendicolith (yellow down-arrow) casting marked posterior acoustic shadow (yellow right-arrow). The right image demonstrates a dilated cystic mass with suspended echoes and circumferential rim of mixed echo material (red up-arrow)

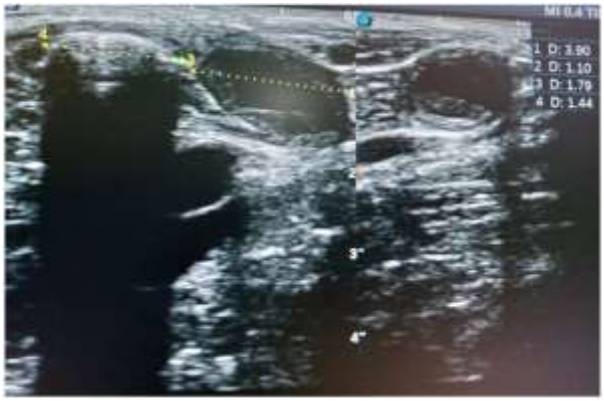

Fig-3: Abdominopelvic ultrasonograms, both images on the left and right demonstrates a cystic dilated mass with echogenic walls medial to the appendicolith, this mass show mixed echo material causing a circumferential rim around the cyst. The cyst measures about 18mm in widest diameter most likely a complex appendiceal cyst; the mucocele (simple mucocele/retention cyst)

DISCUSSION

Appendiceal mucoceles are shown to have a female preponderance of about 3:1, and most times seen in patients around the fifth decade for the benign lesions and the sixth decade for the malignant forms [17, 22]. The index case happens to be a male patient and aged 25-years in contrary to these literatures.

Mucocele commonly arises from epithelial proliferation; this could either be benign or malignant. Though mucocele may occasionally be from an inflammatory or obstructive cause, which could either be from appendicitis and obstruction by a fecalith or appendicolith [4]. The index case had dilatation of the appendix, tenderness from sonographic probe pressure, and an appendicolith casting posterior acoustic shadow following an ultrasonogram, raising a suspicion of inflammatory and obstructive causes, thereby conforming to this literature.

Simple mucoceles (nonneoplastic form) are those arising from chronic obstruction of the appendix, the neoplastic forms (benign and malignant) are those arising from mucosal hyperplasia [7, 12, 22]. The index case however never had histopathologic assessment, the features are most likely those of a retention cyst or the simple mucocele, conforming to these literatures.

Appendicitis and appendiceal mucocele are often difficult to differentiate, but may occasionally coexist, though an outer diameter of 15mm or more may be in favor of a mucocele of the appendix having a sensitivity of about 83% and specificity of 92% [10, 11]. The case under review had sonographic features of appendicitis coexisting with a mucocele; dilated appendix measuring about 11mm in diameter, with presence of an obstructing appendicolith and dilated appendiceal lumen, a cystic mass-like structure with echogenic walls, heterogenous material surrounding the internal wall circumferentially with suspended echogenic materials within the cyst, the cyst measures about 18mm in widest transverse diameter most likely the mucocele, thereby conforming to these literatures.

The presentation of appendicular mucoceles is often vague, could be asymptomatic in a quarter of patients, but most times present with right iliac region pain and tenderness [6], the index case had recurrent right iliac region pain and had rebound tenderness following application of ultrasonographic probe pressure, thereby conforming to this literature.

Imaging plays vital role in detecting appendiceal masses, mucocele inclusive, the radiologic imaging modalities are mainly plain radiography, ultrasonography and computed tomography of the abdomen [16, 17]. The case under review never had plain radiography and a CT scan, but had abdominal and pelvic ultrasound scan that revealed an inflamed, obstructed appendix with an appendicolith and a complex cyst with features of a retention cyst/simple mucocele, thereby conforming to these literatures.

The treatment for appendiceal mucocele is mainly surgical resection; this varies from simple appendectomy (open and laparoscopic forms) to right hemicolectomy with lymph node dissection depending on their malignancy [6, 20, 21]. The case under review was also advised for further clinical and radiologic evaluation with possible appendectomy with or without hemicolectomy; however, the patient declined surgical management as at the time of this report.

CONCLUSION

Recurrent pain and discomfort in the right lower quadrant/iliac region should be adequately investigated by radiologic imaging like ultrasonography to rule out the diagnosis of appendicitis with or without a mucocele, this will enable institution of adequate treatment to prevent complications associated with this condition.

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