

Clinicopathologic findings in elderly patients with appendix mass

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Abstract

Background: An appendix mass is a complication of acute appendicitis with an adherent covering of bowel and omentum enclosing a pocket of pus. A carcinoma may masquerade as an appendix mass in the middle-aged and elderly patients. The clinical findings may not be specific, hence the need for a high index of suspicion when managing the elderly with a suspected appendix mass.

Aim: The aim of this study was to highlight the clinicopathological findings in elderly patients with appendix mass.

Methods: This is a retrospective study of patients aged 60 and older diagnosed with appendix masses and managed surgically. The study was carried out from January 2002 to December 2005. The hospital records of all patients within the study period were obtained and analyzed. A literature review was done using the PubMed search engine. Data analysis was done using SPSS software version 17.

Results: Fifty-eight patients presented with appendix masses and were operated upon during the period with a female:male ratio of 1.5:1. The modal age range was 60-69 years. Most of the patients presented within 5 days of the onset of symptoms. Abdominal pain (89.7%) was the most common symptom. Constitutional symptoms (any of fever, malaise, and anorexia) (27.5%), weight loss (15.5%), and constipation (12.5%) were the other symptoms observed. Acutely inflamed appendix was the most common pathological finding (39.7%). Perforated appendix (17.3%), adenocarcinoma of cecum (15.5%), ameboma (8.6%), benign appendix tumor (5.2%), ascaris-perforated cecum (5.2%), endometriosis (3.4%), and pedunculated fibroid (1.7%) were the other pathological findings.

Conclusion: The appendix mass in the elderly should be treated by surgical exploration as soon as the patient is fit because tumors may masquerade in the mass.

Keywords: Appendicitis, appendix mass, appendix tumor, cecal tumor

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Introduction

The appendix is the most frequently operated organ by the surgeons.¹⁻³ It was described as “worm of the intestine” by the Egyptians. It is absent in lower animals and was omitted by Aristotle and Galen in their dissection of animals. The first

description was probably by Celsius during the dissection of criminals executed by Caesar. Philippe Verheyen coined the term appendix vermiformis in 1710.¹

The function of the appendix is unclear. The walls of the appendix contain mucus-secreting goblet cells and lymphoid tissue that develop during the 14th and 15th weeks of gestation. In the fetus and up to the third decade of life, it has

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immunological function. The lymphoid tissues subsequently start to atrophy and disappear at 60 years of age.²

Acute appendicitis in its uncomplicated classic form is easily diagnosed and treated. The incidence decreases with age. Majority of the acute appendicitis (90%) affects children and young adults with a peak incidence between 10 and 30 years. This is suggested to be a consequence of the atrophy of lymphoid structures of the appendix with age.^{3,4} The diagnosis is often clinical. The benefits of imaging modalities have been equivocal.^{5,6} The risk of perforation in the elderly population is high, up to 70% in some reports.^{7,8} The morbidity and mortality in the elderly remain significant at 28–60% and 10%, respectively.^{7,9,10}

An appendix mass, on the other hand, is the end result of a walled-off appendicitis or perforation.^{1,2,11} We present our experience in the management of patients aged 60 years and older with appendix mass. The aim of this paper is to present the clinical and pathologic findings in patients, 60 years and above who were diagnosed with appendix mass and had surgical interventions.

Patients and Methods

This is a retrospective study carried out from January 2002 to December 2005 at the Department of Surgery, University of Port Harcourt Teaching Hospital. The hospital records of patients including case notes, theater records, and pathology reports of patients aged 60 years and older who were diagnosed with appendix masses and managed surgically were obtained. The history, presentation, diagnosis, intraoperative findings, and pathological findings were also retrieved and analyzed. Literature review was done using PubMed search, and data analysis was done with SPSS version 17.

Results

Fifty-eight patients presented with appendix masses and were operated upon during the period with a female:male ratio of 1.5:1. The modal age range was 60–69 years [Table 1].

Most of the patients presented within 5 days of the onset of symptom. Abdominal pain (89.7%) was the most common symptom while constipation (12.5%) was the least common [Table 2].

Acutely inflamed appendix was the most common pathological finding (39.7%). Perforated appendix (17.3%), adenocarcinoma of cecum (15.5%), ameboma (8.6%), benign appendix tumor (5.2%), ascaris-perforated cecum (5.2%), endometriosis (3.4%), and pedunculated fibroid (1.7%) were the other pathological findings [Table 3].

Table 1: Age distribution of patients with appendix masses

Age (years)	Frequency	Percentage
60-69	32	55.2
70-79	21	36.2
80 and above	5	8.6
Total	58	100

Table 2: Presenting symptoms in elderly patients with appendix mass

Symptoms	Frequency	Percentage
Abdominal pain	52	89.7
Fever	16	27.5
Constipation	7	12.5
Weight loss	9	15.5

Table 3: Pathological findings in patients aged 60 years and above with appendix mass

Pathological findings	Frequency	Percentage
Acutely inflamed appendix	23	39.7
Perforated	10	17.3
Ameboma	5	8.6
Ascaris perforation	3	5.2
Adenocarcinoma	9	15.5
Appendix tumor	3	5.2
Endometriosis	2	3.4
Ovarian tumor	2	3.4
Pedunculated fibroid	1	1.7
Total	58	100.0

Discussion

An appendix mass is an inflamed appendix with adherent covering of omentum and small bowel, occasionally enclosing a pocket of pus. The history is similar to appendicitis with a longer duration of onset.² This is a complication that has been observed in 2–6% of the patients with acute appendicitis.³ In our study, the modal age of the patients with appendix mass was 60–69 years. This is not unexpected because the appendix, like all lymphoid structures, undergoes atrophy with age. This finding is thought to explain the reduced frequency of diseases of the appendix with age.²

The frequency of appendix abscess was observed to be higher in females in our study (60.3%) The reason for the observation is not clear. It may not be unrelated to the predisposition to pelvic inflammatory disease from retrograde infection via the fallopian tubes. Abdominal pain was the most common symptom in 89.7% of the patients. Only 27.5% of the patients had fever in association with anorexia and vomiting. These findings may be related to the reduced expression of mediators of inflammation at the extremes of age.^{3,5}

Most of the patients (56.9%) presented within 5 days of the onset of the symptom. Majority of this group have acutely inflamed or perforated appendix alone as the primary pathology. Those with other co-existing pathologies such as

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uterine fibroid had a more indolent presentation. There is a paucity of literature characterizing the clinical presentation of appendicitis and appendix masses in the elderly.

Clinical examination reveals a mass in the right iliac fossa in all cases. These were confirmed with ultrasound scan (USS). While USS can detect an appendix mass, the sensitivity is low in diagnosing associated pathologies with a significant interobserver variation.^{5,6} None of our patients had computerized tomography or bowel contrast studies. While other differential diagnosis of appendix masses was entertained, a definitive diagnosis was not made until after surgery. Acute appendicitis and perforation were the most common pathologies observed in our study. Inflammation led to neutrophil infiltration and abscess formation between the bowel loops. Attempts by omentum, and loop of the bowel to wall off the inflammatory process, result in the formation of an appendix mass.² Adenocarcinoma of the cecum was found in 15.5% of the patients. This is not unexpected as the incidence of colonic tumors increases generally with age.^{3,8}

Advances in science have not significantly changed the management of patients with appendix mass. There is still controversy over the best form of treatment^{7,11} between nonoperative treatment, early or delayed surgical exploration.^{7,8,12} An alternative in those with a well-defined abscess at presentation is ultrasound or computed tomography (CT)-guided drainage. CT-guided drainage has become a successful way of deferring operation in those who are not fit for surgery.^{10,13} In the elderly patients, however, caution needs to be entertained because of the broad range of differential diagnosis. This is especially important in the females where gynecological conditions frequently create additional camouflage. The management trend in the elderly is toward surgical exploration, and this is our practice.

Intraoperative procedures that were carried out varied from drainage of appendix abscess, appendectomy to right hemi-colectomy and other appropriate treatments. The diversity of possible intraoperative differentials emphasizes the need for multi-disciplinary management in some cases. Barium enema and colonoscopy are increasingly being added in the evaluation of older patients with appendix mass to exclude colonic tumor. The postoperative hospital stay largely depended on the pathology. Patients who presented late from the onset of symptoms tend to have longer hospital stay. This may be

due to the early use of antibiotics in those of inflammatory aetiology, the most common cause of appendix mass in this study. Though some have suggested that there is no benefit of antimicrobial use in patients with wall off appendix mass.^{14,15}

Conclusion

The appendix mass in the elderly should be treated by surgical exploration as soon as the patient is fit because tumors may masquerade in the mass.

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Conflicts of interest

There are no conflicts of interest.

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