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Full Length Research Paper

Unusual findings in appendicectomy specimens: Local experience in Al-Ahsa region of Saudi Arabia

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Appendicitis is one of the commonest surgical emergencies. Appendix may appear normal at surgery, but the histo-pathological assessment of the specimens may reveal unusual pathology. Our aim was to review the histopathological reports of 1324 appendicectomy specimens and to document the unusual findings. The medical record and the histopathology report of 1324 patients who underwent appendicectomy (between January 2005 and December 2007) at King Fahad hospital, Hofuf, Al-Hassa, Saudi Arabia were retrospective reviewed according to age, sex, histopathological diagnosis and unusual findings on histology. The histopathology reports, reveal (45) abnormal incidental lesions, including five patients with Carcinoid tumor, 1 patient with Adenocarcinoma and nine Crohn's disease patients. The gross examination at the time of surgery cannot detect all the abnormalities of the appendix. This study supports routine histopathological examination of all appendicectomy specimens to avoid missing any clinically important and treatable condition.

Key words: Appendecitis, pathology, specimens, patients.

INTRODUCTION

Appendicitis is one of the commonest surgical emergencies (Primatesta and Goldacre, 1994), it remained a clinical entity and an ongoing diagnostic challenge. However, histopathological studies are the gold standards for diagnosis of acute appendicitis. This make the appendix one of the most commonly received specimens at pathology department (Rosai and Akerman, 2004). There is evidence that intra-operative normal appendices may have abnormal incidental finding at cytology level, and the practice of sending appendicectomy specimens for routine histopathological examination differs between centers, as well as the literatures (Nemeth et al., 2001; Duzgun et al., 2004).

This is a review of 1324 pathology reports of appendicectomy specimens in Saudi patients; we report the types of pathology seen in appendices removed and document the unexpected finding.

PATIENTS AND METHODS

The medical records of 1324 patients who had undergone non-incidental open appendectomy during a 36 month period (January 2005 and December 2007) at the King Fahad hospital, Hofuf, Al-Hassa (Eastren province of Saudi Arabia) were collected for data analysis. At this hospital, the appendicectomy specimens were routinely send to histopathological examination.

The reports analyzed are for the following parameters: age, sex related incidence of acute appendicitis, complication (gangrene, perforation) rate, rate of negative, and the incidence of other pathologies encountered. The surgeon's diagnosis, clinical findings and pathologists report were reviewed to ascertain whether the clinical diagnosis correlated with the histopathological diagnosis or whether the latter provided new information. The final histopathological diagnosis divided this work into the following:

1. Normal appendix without any pathologic changes.
2. Acute appendicitis (including perforation and gangrene).
3. Abnormal finding.

RESULTS

Table 1 shows the characteristics of 1324 patient who underwent appendicectomy. Their ages ranged from 7 to 58 years (mean = 21.7). The incidence of appendicitis is strongly age dependent, peaking at 10 - 30 years. Most cases (95.2%) occurred in patients below 40 years of age with 61.2% males (M: F = 1.6:1). We noticed that clinical impressions of acute appendicitis, made by the surgeon agreed with pathologists' report in 57.9%, and disagreed

Table 1. Demographics of 1324 studied patients.

Item	No.	%	
Total	**1324**	**100%**	
Age			
<10	144	10.9	
10-	495	37.4	
20-	379	28.6	
30-	242	18.3	
40-	45	3.4	
50+	19	1.4	Mean +/-SD = 21.7 +/- 10.5
Sex			
Male	810	61.2	
Female	514	38.8	
Appendix length			
< 5 CM	109	8.2	
5-10 CM	1161	87.7	
> 10 CM	54	4.1	Mean +/- SD = 7.12 +/- 1.86
Appendix width			
<0.5 CM	63	4.7	
0.5-1.0 CM	1072	81.0	
>1.0 CM	189	14.3	Mean +/- SD = 0.86 +/- 0.48
Histopathology			
NL	287	21.7	
Acute	767	57.9	
Gangrenous	126	9.5	
Perforated	77	5.8	
Abnormal finding	67	5.1	

in 42.1% of cases. One-hundred and ninety-one (21.6%) appendices were normal, which was higher in females than in males. Forty–five (5.1%) specimens revealed incidental abnormal diagnosis (Table 2). The operating surgeon suspected only six of these specimens. No further treatment was needed in eight patients with chronic appendicitis, and one patient with endometriosis, while 21 patients with parasites infestation were treated with antihelmithic drugs, and nine Crohn's disease patients referred to the gastroenterologist team for additional investigations. The five cases of carcinoid tumors and the single case of Adenocarcinoma, present as acute appendicitis, and all underwent right hemicolectomy.

The diagnosis is made after appendicectomy, and the right hemicolectomy done after the confirmation of histopathology.

DISCUSSION

Surgical exploration for suspected appendicitis is one of the most common surgical emergencies in young population worldwide (Andersson et al., 1999). Appendicitis can occur at any age, from infants to extreme old age, and usually reaches a peak during the second and third decades of life (Andersson et al., 1994). The peak incidence of appendicitis in our study (Table 1) was in age group 10 to 30 years; this is quite similar to other studies (Chua et al., 1990; Andersson et al., 1992; Lee et al., 1993).

Some authors have reported a sex difference for appendicitis (Primatesta and Goldacre, 1994; Rosai and Akerman, 2004) with males being more common than females. In this study, 540 (61.2%) patients were males and 38.8% were females, with a ratio 1.6:1. The age-specific

Table 2. Numbers of incidental abnormal diagnosis.

Diagnosis	No. of cases suspected intra-operative	No. of cases confirmed by histopathology	Management and outcome
Parasites			
Enterobious	0	18	Medical treatment (cured)
Schistosoma	0	3	
Crohn's disease	4	9	Medical treatment (Follow-up)
Chronic appendicitis	1	8	No further treatment needed.
Endometriosis	0	1	No further treatment needed.
Carcinoid tumor	1	5	Right hemicolectomy (Follow-up)
Adeno carcinoma	0	1	Right hemicolectomy (Follow-up)
	6	45	

incidence of acute appendicitis followed a similar pattern for males and females, though males have higher rates at virtually all ages. The pathological changes vary from focal infiltrating of the mucosa with inflammatory cells up to diffuse infiltration of all layers of the appendix and mucosal necrosis, and the histopathological examination of appendix is important to confirm the diagnosis of appendicitis, or to discover other pathology (Marudanayagam et al., 2006; Matthyssens et al., 2006).

Our study showed that the clinical and macroscopic assessment of acute appendicitis agreed with histology findings in the diagnosis of appendicitis only in 57.9% of cases. This highlights the limitedness of diagnosing acute appendicitis by appearance. Although appendicectomy is the most commonly performed emergency abdominal surgery, the procedure is still associated with a high negative appendicectomy rate. The number of negative or unnecessary appendicectomy (191 cases) in our series is from the pathologist's point of view significantly higher than from the surgeons' point of view. But the percentage (21.7%), still in the range of 10 to 25% is reported in literature (Primatesta and Goldacre, 1994; Rosai and Akerman, 2004; Andersson et al., 1992; Lee et al., 1993).

In this study, the histopathological examinations reveal varieties of lesions, not detected at operation. Not all the incidental finding pathology had clinical significant (chronic appendicitis, parasite infestation), but some finding (tumors) need further patients management. Most of the diagnosis will miss, if only grossly abnormal appendices at surgery are examined histopathologically. The histopathological diagnosis was important in the postoperative management of these patients, especially those with tumors.

Conclusion

Intraoperative recognition of abnormal pathology is undependable, and we support the sending of all appendicectomy specimens for routine histopathology examination.

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