ORIGINAL ARTICLE

ROLE OF HISTOPATHOLOGY AFTER EMERGENCY APPENDECTOMY

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ABSTRACT

Background: To determine the frequency of inflammed appendices and other pathologies by histopahtological examination of appendectomy specimens.

Material & Methods: All patients presenting with pain right iliac fossa, diagnosed as acute appendicitis on history and clinical examination were selected. Patient age, sex, operative findings and histopathology reports were noted. Histopathology reports were analysed according to diagnosis.

Results: Out of 114 patients who were diagnosed as an acute appendicitis and underwent appendectomy, 85% reports revealed acute inflammation, 8.7% were normal while 1.7% had Meckel's diverticulitis, 2.6% showed tuberculosis, one each case was diagnosed as adenocarcinoma and carcinoid. Lymphoid hyperplasia was predominant finding in acute appendicitis.

Conclusion: Beside acute inflammation, histopathlogical examination of appendicitis specimens yield important clinical information like benign and malignant pathologies. All specimens of appendectomy should be sent for histopathological examination, so as not to miss any unusual or coexisting pathology.

KEY WORDS: Acute appendicitis; Histopathology; Appendectomy.

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INTRODUCTION

Acute appendicitis is the most common surgical emergency[1] and the decision for appendicectomy is usually based on clinical signs and symptoms of acute appendictis[2]. Although certain investigation such as C-reactive protein, ultrasonography and spiral CT scan abdomen has lead to improve diagnosis[3'4] their wide spread use has not been adopted in the local settings as yet where the diagnosis rest on clinical feature supplemented by white cell count. The higher negative appendectomy rates have been reported in females, especially in reproductive age group, where clinical conditions like ovarian and tubal pathologies mimics features of acute appendicitis.[5]

For that reason many appendices, whether normal or abnormal, are surgically resected. In some centres the resected appendix is always submitted for histopathological examination, in others, the appendix is sent for examination only when the operative findings are inconclusive. In most cases routine histopathological examination added little clinically important information to other clinical and operative gross findings, but a variety of interesting and uncommon lesions were identified. These included enterobiasis, schistosomiasis, mucocele, trichuriasis, tuberculosis, ascariasis, Endometriosis, mucinous cyst adenoma, granuloma, carcinoid tumor, neuroma, clonorchiasis, primary adenocarcinoma and secondary carcinoma.[6]

The common causes of appendicular luminal obstruction, leading to acute appendicitis as seen on histopathology and published in Pakistani medical literature are lymphoid hyperplasia, faecolith, entrobius vermicularis and adenocarcinoma. [6] . The gold-standard for diagnosis of acute appendicitis is histopathology.[7]

The histopathological examination of the appendix serves two purposes. First, it allows the diagnosis of acute appendicitis to be confirmed, especially where this is not evident intraoperatively. Second, histopathological examination may effect subsequent clinical management of the patient. Specimens reported as negative for acute appendicitis are useful in eliminating acute appendicitis as a cause of symptoms and allowing further investigations to be performed should symptoms persist.[7]

Histopathological assessment of every removed appendix is essential so as not to miss rare

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but important diagnosis. The routine histopathological examination showed inflamed appendices in 55.6%.[8]

The rationale of this study is to guide surgeons about the unreliability of intra operative detection of pathology and to send specimen of appendectomy for histopathology to confirm the diagnosis of inflamed appendices or some other pathology.

MATERIAL AND METHODS

All patients were selected from emergency presenting with pain right iliac fossa, diagnosed as acute appendicitis on history and clinical examination(tenderness, guarding, duration and radiation of pain)along with associated symptoms like nausea and vomiting, appendicectomy specimens were prepared according to the hospital defined protocols, involving immediate fixing in formalin prior to transport to pathology laboratory. Specimens were sectioned at the tip body and base. Details of microscopic findings are issued in the final report.

RESULTS

A total of 114 patients were studied. All patients were diagnosed clinically as having acute appendecitis based on physical and laboratory findings. Among these patients, 77 patients were male and 37 were female. The age was range from 12 to 60 years.

Table 1: Age and Sex Distribution of Patients with Appendectomy Specimens

Age (Range)	Male	Female	Total
12-20 Years	7	4	11
21-30 years	36	19	55
31-40 years	29	10	39
41-50 years	3	2	5
51 -60 years	2	2	4
Total	77	37	114

Table 2: Analysis of histopathological findings of appendectomy specimens

Histopathology	Number	Percentage
Normal	10	8.7%
Acute inflammation	97	85%
Lymphoid hyperplasia	51	52.5%
Abscess	5	5.1%
Gangrenous appendix	2	2%
Meckel's diverticulitis	2	1.7%
Tuberculosis	3	2.6%
Adenocarcinoma	1	0.8%
Carcinoid	1	0.8%

Out of 114 patients, 97 cases (85%) reports were consistent with inflammation showing changes of acute appendecitis, lymphoid hyperplasia in 52.5%, abscess in 6%, and gangrenous appendics in 2% of cases.

3 cases (2.6%) showed tuberculosis, 2 cases (1.7%) had Meckels diverticulitis, and one each case were diagnosed as adenocarcinoma and carcinoid tumor.

DISCUSSION

Despite advances in technology, there is no laboratory test or examination with sufficient specificity and sensitivity to diagnose appendicitis consistently. Many surgeons are turning from a philosophy of "when in doubt, take it out" to "when in doubt, check it out". Approximately 7% of the population will have appendicitis in their life time with peak incidence occurring between the ages of 10 and 30 years. So, the appendectomy is the most frequently performed abdominal operation.[9]

Patient's symptoms frequently disappear post operatively even with negative histopathologies. It has been suggested that in these cases there may be an early subclinical appendicitis at micro cellular level. This indicates that it is not possible to make an accurate macroscopic assessment of appendiceal inflammation emphasizing more on importance of histopathology.[10]

Less than 50% of the appendiceal tumors are identified intra-operatively. Acute appendicitis may be the mode of presentation of appendix neoplasms particularly adenocarcinoma.[11] In over study 0.8% cases accounted as adenocarcinoma in our study which were kept on follow up because 20% may develop secondary malignancy.[12] Carcinoids are the most common tumor of appendix and are typically small, firm, circumscribed yellow-brown lesions.[13] It is plausible that carcinoid tumors may present by appendicitis because of luminal obstruction or elevated levels of 5 hydroxytryptamine, histamine and kinin. As these are all potent mediators of inflammation.[14] Our study showed 0.8% specimens with carcinoids. This patient in our study had signs and symptoms of acute appendicitis. Flushing, diarrhea, Cushing syndrome or carcinoid syndrome were not observed. Diagnosis was made after appendectomy and histological examination. The reported incidence of carcinoids in several studies ranges from 0.02 to 1.5% of surgically removed appendices.[15] 1.7% of cases presented as acute appendicitis but had Meckel's diverticulitis as coexisting pathology. Meckel's diverticulitis can mimic acute appendicitis in clinical history, physical findings and operative findings. It is

important to always consider this as possible cause of acute abdomen.[16]

CONCLUSION

Routine histopathological examination of the appendix yields important clinical information in addition to operative findings and should be undertaken in all cases. Unusual or co-existing pathologies though rarely seen but their final confirmation can be done by histopathological examination only.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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