International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Available online on: https://ijmpr.in/

Original Article

Study of Appendicular Lesions in A Tertiary Care Centre

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Received: 25-10-2025
Accepted: 17-11-2025
Available online: 28-11-2025

ABSTRACT

Acute appendicitis is inflammation of the vermiform appendix. It is the commonest general surgical emergency in children and young adults, yet its diagnosis can still confound even the most skilled surgeon due to its highly variable presentation of appendicitis, with fewer than 50% of patients exhibiting classical features. Appendicectomy specimens from suspected acute appendicitis often appear macroscopically normal but histological analysis reveal a more sinister underlying pathology.

Aim: The aim of this study is to evaluate the etiology of appendicitis among the patients who underwent appendectomy at our hospital.

Method: This is a retrospective descriptive study, patients who underwent appendectomy were included. The patients' data was collected and histopathological findings recorded following appendectomy.

Result: Out of 985 cases included in the study, 701 were males and 284 were females with the overall average age of 18.6 years. Acute inflammation was the most common findings, seen in 581 patients, followed by chronic appendix in 360 patients, fibrous obliteration (28), Enterobius vermicularis (4), Ascaris (1), Taenia (3), Carcinoid (4) and Mucinous neoplasms(2).

Conclusion: Chronic appendicitis is the most common cause in our study followed by Acute appendicitis and fibrous obliteration of appendix which is most commonly seen in elderly patients. Other rare causes include parasitic infestations like ascariasis, taeniasis and neoplastic lesions like carcinoid and mucinous neoplasms. Hence, histological examination of appendectomy specimens are more valuable in identifying rare pathologies which were simply mistaken for routine appendicitis and help in further treatment of such cases.

Keywords: *Appendicitis, Histopathology, Appendectomy, Appendicular lesions.*

INTRODUCTION

Appendicitis is the most commonly diagnosed condition who present with acute abdominal pain in the left iliac fossa, especially in children and teenage group. If there is any perforation of appendix, there is severe peritonitis and were taken for emergency laparotomy. Most of the cases turned out to be acute or chronic appendicitis and very rare cases showed unusual findings like parasitic infections and neoplasms. Some of the cases show very mild degree of inflammation, but causing severe pain abdomen.

METHODS

All the specimens collected in the department were fixed in 10% neutral buffered formalin for one day and subjected for routine processing. Two transverse and one longitudinal section were given in each case. The cut section was observed for luminal patency, presence of mucus and worms. Both the transverse as well as longitudinal sections were submitted for histopathology. The formalin fixed, paraffin embedded tissue blocks were cut using rotatory microtome and sections were stained with hematoxylin and eosin. The stained sections were examined by light microscopy. The histopathological findings were correlated with the clinical parameters.

Furthur bits were given whenever required along with deeper sections for confirmation of diagnosis. Some of the cases were kept for peer review and to exclude any other associated pathologies. All the results were tabulated and categorized as per the diagnosis and for evaluation.

RESULTS

The study was conducted for a period of 3 years from April 2022 to March 2025 in Vishwabharathi medical college, Penchikalapadu, Kurnool. The study included 985 cases of appendicitis, of which Males were 701 and Females constituted 287 cases. Most of the cases were diagnosed as Chronic appendicitis, followed by acute appendicitis and other lesions included parasitic infections and neoplasms.

Most of the cases are below 20 years age group and predominantly males were affected. The presenting symptoms are being acute pain abdomen, which on clinical examination were diagnosed as pain in aright iliac fossa with classical signs of appendicitis.

The common findings include neutrophilic infiltrate in the sub mucosa and muscularis propria. Some of the cases show dense inflammatory cells in the wall and reaching into periappendicular adipose tissue also. Some of the cases show lymphoid hyperplasia with reactive germinal centres with mild neutrophilic infiltrate.

Twenty-eight cases show fibrous obliteration of the lumen with replacement of the wall by adipose tissue and fibrosis, scanty inflammation secondary to chronic inflammation followed by healing process in these cases. Two cases show epithelioid cell collections and langhans giant cells forming granulomas in the wall which were found to be of tuberculous etiology.

Parasitic infections showed the cross section of the worms in the lumen as well as in the wall. The cases among these groups are Enterobius vermicularis, ascariasis and proglottids of taenia in the lumen. Parasites show suckers and hooks in the scolices. The proglottids show gravid uteri. Other usual findings like neutrophilic and mild eosinophilic infiltrate are also seen in the wall.

Neoplastic lesions are found in six cases and these cases were seen in elderly patients. These include 4 cases of carcinoid which are seen at the tip of appendix and 2 cases of mucinous neoplasms.

Table 1. Sex distribution of appendicular lesions

Males	Females	Total
701 (71.2%)	284 (28.8%)	985

Table 2. Age group distribution of appendicular lesions

Age group	Males	Females	Total
0-10	201	113	314
11-20	346	114	460
21-30	138	48	186
31-40	12	6	18
41-50	4	1	5
51-60	0	2	2
Total	701	284	985

Table 3. Disease wise distribution of appendicular lesions

Diagnosis	Males	Females	Total
Chronic appendicitis	437	144	581 (59.0 %)
Acute appendicitis	245	115	360 (36.5%)
Granulomatous appendicitis	0	2	2 (0.2%)
Fibrous obliteration of appendix	11	17	28 (2.84%)
Taenia infestation	2	1	3 (0.3%)
Enterobius vermicularis	3	1	4 (0.4%)
Ascariasis	1	0	1 (0.1%)
Carcinoid	1	3	4 (0.4%)
LAMN	1	0	1 (0.1%)
HAMN	0	1	1 (0.1%)

Table 4. Neoplastic and non neoplastic appendicular lesions

Specimen	Male	Female	Total Cases	Percentage
Non- Neoplastic Lesions	699	280	979	99.2 %
Neoplastic Lesions	02	04	06	0.8%

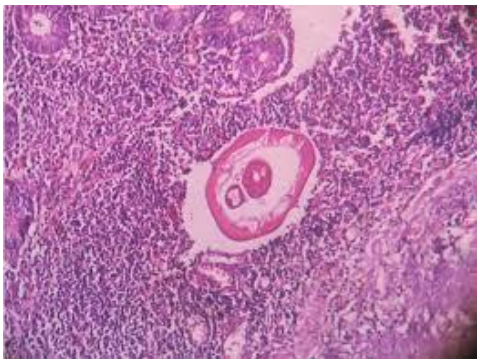

Fig 1. Microscopic picture of Ascaris lumbricoides in appendix

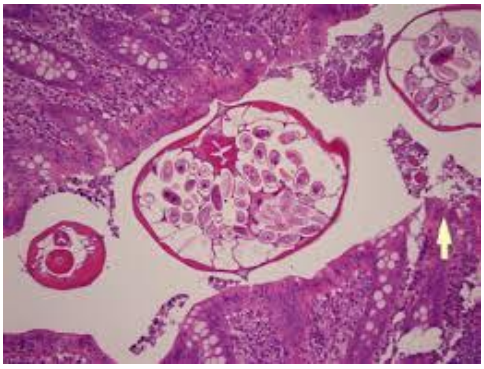

Fig 2. Microscopic picture of Enterobius vermicularis in appendix

Fig 3. Microscopic picture of Taenia in appendix

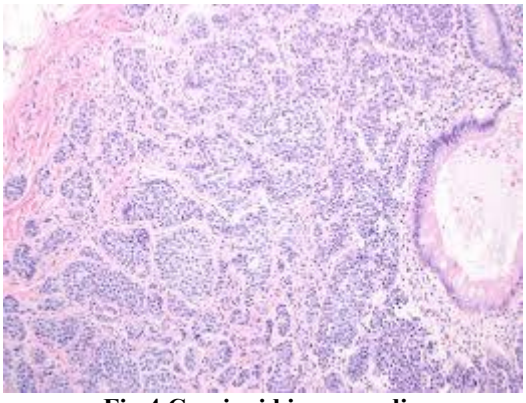

Fig 4.Carcinoid in appendix

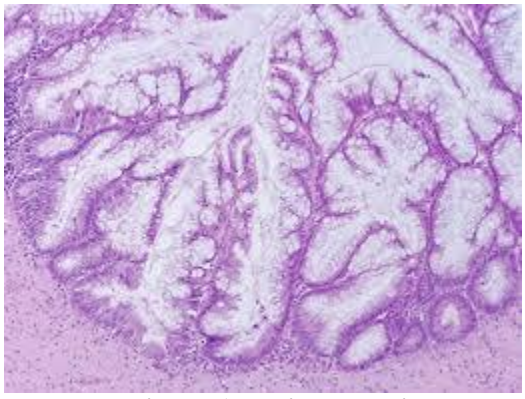

Fig 5. LAMN in appendix

DISCUSSION

Appendicitis is one of the acute and emergency condition which leads to immediate surgical intervention. Most common causes are non-specific, but there are few rare conditions which we come across in this study. Some of the rare causes are parasitic infestations like ascariasis, taeniasis and neoplastic conditions include carcinoid, Mucinous neoplasms and adenocarcinomas. Identification of parasites in appendicitis cases will help in further management of the patient for specific parasites.

In a study by Vijayasree et al, it has been observed that males in the adolescent age group have a higher incidence of appendicitis compared to females. This supports present study, which observed a higher proportion of males compared to females (701, 71.8% vs 284, 28.8%).

In the present study, among cases of inflammatory appendicitis, the histopathological examination revealed that chronic appendicitis (581, 58.0%) was the most common diagnosis. The number of patients with inflammatory or non neoplastic lesions were higher than those with neoplastic lesions (979, 99.2% vs 6, 0.8%). This finding was consistent with the observations reported by Blair NP et al., which showed that 80.0% of appendectomy cases were non neoplastic, while only 4.0% were neoplastic.

Amongst 985 appendicectomy specimens, 979 (99.2%) were found to be non- neoplastic lesions and only 06 (0.8%) cases were diagnosed as neoplastic lesions. In a study by AP Punnoose et al. it was reported that 99% of appendicectomy cases were non-neoplastic lesions and 1% were neoplastic which was concordant with our study.

Table 5. Comparision of Neoplastic Lesions

Study	Total Cases	Non-Neoplastic Cases	Neoplastic Cases	Most Common Lesion	Most Common Type of Malignancy Found
Current Study	985	979 (99.2%)	6 (0.8%)	Chronic Appendicitis	Carcinoid
R. Sujatha et al.	230	205 (89.1%)	4 (1.8%)	Acute Appendicitis	Carcinoid
Meryem Adam Moh. Ali et al.	340	316 (93%)	11 (3.23%)	Acute Appendicitis	Carcinoid
Punnoose AP et al.	576	570 (99%)	6 (1%)	Acute Appendicitis	LAMN
Elfaedy et al.	4012	3990 (99.45%)	22 (0.54%)	Acute Appendicitis	NET

CONCLUSION

Even though appendicitis is a common disease in acute abdomen in children, few cases pose an important role in pathological confirmation of diagnosis. Most of the cases are consistent with acute appendicitis, few of them show erroneous results. Hence histopathological examination remains the gold standard method. This additional information helps in subsequent clinical management of patients such as anti-helminthic treatment and follow up.

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