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Presentation and Histopathology of Acute Appendicitis

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Abstract:
INTRODUCTION: Acute appendicitis is on of the most common cause of acute abdomen. Acute appendicitis can be managed conservatively and surgery is also required in many cases. Appendectomy can be termed 'Negative' if histopathologic examination (HPE) is normal. In this study we try to find out what is the percentage of negative appendectomy.
MATERIAL AND METHODS: 60 cases of acute appendicitis who underwent appendectomy were included in this research. Demography, presentation, surgery performed and HPE in all cases were recorded and evaluated.
RESULTS AND DISCUSSION: Acute appendicitis and appendectomy is more common in males (56.6%) compared to females (43.4%). Most patients were in 20-30 years of age. HPE showed 61.6% cases were that of Acute appendicitis with periappendicitis, 20% cases showed features of Acute gangrenous appendicitis, 5% cases had Unusualhistologic report and 13.3% cases were termed Negative appendectomy.
CONCLUSION: Histopathologic examination should be done in maximum possible number of appendectomy specimen.

Key Words: *Acute appendicitis, Histopathologic examination (HPE), Appendectomy, Negative appendectomy*

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I. Introduction

Acute appendicitis is most common cause of acute abdomen in young adults.[1] Luminal obstruction of appendix is the most important step in development of acute appendicitis. This luminal obstruction commonlyoccurs due to one or more of following causes- lymphoid tissue hyperplasia, fecalith, stricture, foreign body, intestinal parasite and tumours of caecum or appendix and few other rare pathologies.[1,2,3,4] following luminal obstruction intraluminal pressure increases inside appendix leading to lymphatic drainage obstruction, mucosal oedema and ulceration. Finally, venous obstruction develops causing ischemia of appendix and bacterial translocation through appendiceal wall.The diagnosis is based mainly on history and clinical examination supported by laboratory, and radiological findings.[15] The diagnostic workup could be improved by using clinical scoring systems (e.g. Alvarado score) and measurement of inflammatory markers like CRP.[5]Despite all new advances in diagnostic methods, population-based rates of negative appendectomy remain unchanged.[6] While negative appendectomy can lead to unwanted complications and un-necessary financial burden, delay in diagnosis may causecomplications like perforated appendicitis and generalized peritonitis.[7] This research is done to study the demographic pattern of acute appendicitis, its diagnostic workup, management and HPE findings of operated cases in our institute.

II. Material And Methods

This prospective study was carried out at the Department of general surgery, Patliputra medical college, Dhanbad, Jharkhand, India; over a period of one year (from march 2019 to February 2020).
The study population consists of 60 patients of clinically diagnosed acute appendicitis case who underwent appendectomy (laparoscopic /open method).
Exclusion criteria- 1) Paediatric age group 2) Known cases of appendicular tumour 3) Acute appendicitis cases which were managed conservatively

- All subjects were explained about the study and theirwritten consent was taken for their participation in thestudy.

- Preoperative baseline routine investigations and ultrasonography of abdomen were carried out in allsubjects.
- Specimen of excised appendix obtained after surgery in each case was sent forhistopathological examination.
- Patient particulars, preoperative investigation findings and histopathological examination findings in each case wererecorded in a data collection sheet.
- Statistical analysis was done using IBM SPSS Statistics 23software.

III. Results

*In our study total 60 patients underwent appendectomy for acute appendicitis. Out of 60; 26(43.4%)were female and 34(56.6%) were male

Sex	Number of patients
Male	34
Female	26

Table 1: gender distribution of study population

*Mean age of patients was 27.55 years with standard deviation of 7.07 years. Cases were divided in 4 age groups. 7(11.6%) patients were younger than 20 years. A maximum of 25(41.6%) patients included in our study were from 20-30 years age group, 19(31.6%) cases were in 30-40 years age group, 6(10%) cases were in 40-50 years age group and 3(5%) cases were older than 50 years.

Age groups	Number of patients
<20 years	7
20-30 years	25
30-40 Years	19
40-50 Years	6
>50 Years	3

Table 2: Age distribution of study population

*Presenting complaint: Pain Abdomen was present in all the 60 cases. Second most common complaint was Fever, found in 24(40%) cases. Anorexia was seen in 19(31.6%) cases and Nausea and Vomiting was present in 17(28.3%) cases

Presenting complaint	Number of patients
Pain abdomen	60
Fever	24
Anorexia	19
Nausea and vomiting	17

Table 3: Presenting complaints of study population

*Histopathological findings: All 60 cases were treated with open appendectomy and specimen was sent for HPE. Out of 60 patients, 8(13.3%) reports were normal and did not show features of any pathology. 3(5%) cases showed unusual pathology other than appendicitis. 1 of the unusual cases was that of carcinoid tumour located at the tip of appendix and 2 showed granulomatous inflammation. Rest 49(81.6%) reports were showing features of acute appendicitis. Out of these 49 cases, 37(61.6%) were cases of acute appendicitis with periappendicitisand 12(20%) were cases of acute gangrenous appendicitis.

Histopathological finding	Number of patients
Normal /Negative appendectomy	8
Acute appendicitis with periappendicitis	37
Acute gangrenous appendicitis	12
Unusual finding	3

Table 4: HPE report of appendix specimen excised

IV. Discussion

Acute appendicitis is one of the most common surgical emergency and appendectomy is one of the most common surgicalprocedures performed worldwide.[9,10,11] In study done by A J Omotoso et al[12], appendectomy was more common in females compared to males whereas in study by Medha P. Kulkarni et al[13], the incidence of appendicitis and appendectomy was higher in males (55.27%) compared to females (44.73%).In our study also rate of appendectomy is higher in males (56.6%) compared to females (43.3%). Similar to study done by Bahar AMN et al[14] and many other studies; in our study also, young adults particularly those in age group 20-30 years, are most common to undergo appendectomy.[12,14]Abdominal pain, loss of appetite, nausea

and vomiting most are the most common symptoms of acute appendicitis in article by D J Humes et al.[15] In our study also similar findings were seen and abdominal pain was most common symptom present in 100% cases. In our study negative appendectomy (normal HPE report) was seen in 8(13.3%) patients. In study Dr Shubhendu Bharadwaj et al[21] negative appendectomy rate was 3.2%; in study byArif Emre et al[4] it was 6% and in study by Bahar AMN et al[14] it was 37.5%. Whether or not all appendix specimen should be sent for HPE is debatable issue. While Matthyssens et al[17] suggest HPE only when macroscopic abnormality is seen intraoperatively; Conclusion in study by Mandakini M Patel et al[19]and instudy by Mohamed Abd Al-Fatah[20]is different. They conclude that Intraoperative diagnosis of pathologic appendix by surgeon is unreliable, hence all appendix specimen should be sent for HPE.

V. Conclusion

Acute appendicitis is more common in young adults. In this study rate of appendicitis needing appendectomy is higher in males compared to females. Most common presenting complaint in acute appendicitis patients is pain abdomen followed by fever, anorexia, nausea and vomiting. HPE in every appendectomy is not done in our setup. This is a cost-efficient approach to go for HPE selectively, but small percentage of cases can have unusual findings which can only be diagnosed by HPE. Hence, in our opinion, if sufficient manpower is present in a setup then maximum possible number of specimens should be sent for HPE.

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