IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 20, Issue 10 Ser.5 (October. 2021), PP 39-43
www.iosrjournals.org

Clinicalpresentationofacuteappendicitisinadults at government General Hospital, Vijayawada

DR . P.SRI HARSHA{PG}, DR.P.HEMALATHA{PG}, DR.K.RAHUL ROY{PG} DR.K.SRINIVAS M.S {PROFESSOR}

Abstract
Background:
Acute appendicitis is the most common surgical abdominal emergency. Delayed treatment increasestheincidenceofcomplications.Theaimofthisstudywastoinvestigatethepresentation,incidence,andpredictorsofcomplications,andhistologicalfindingsinadultpatientswithclinicaldiagnosisofacuteappendicitis.
Methods:
The study was a prospective observational study and included patients aged 12 years and olderdiagnosedwithacuteappendicitis.Data collected includeddemographicdata, clinicalpresentation,duration ofsymptomsandreasonsforpresentationdelay,diagnosticinvestigations,operativeandhistologyfindings,lengthofhospitalstay,andmortality.
Results*:*
A total of 146 patients were admitted with a mean age of 26 years (SD=12Years). The male to female ratio was 1.6:1.Predominantpresentingsymptomswererightiliacfossapain(95%),nausea(80%),andvomiting(73%),with63%ofpatientspresenting2daysafteronsetofsymptoms.Feverwaspresentin15%andonly31%ofpatientsgaveatypicalhistoryofacuteappendicitisofvagueperi-umbilicalpain.Thenegativepredictivevaluesofwhitecellcountand C-reactiveproteinforacuteappendicitiswere28%and50%,respectively.Sensitivityoftheultrasound to detect acute appendicitis was 60% with a negative predictive value of 31%; 30% of patients hadcomplicatedappendicitis.Histologyresultsshowedanormalappendixin11%ofpatients.The30-daymortalityratewas1.4%.
Conclusions:
Patientswithacuteappendicitisrarelypresentwithatypicalhistoryofvagueperi-umbilicalpain.Thenegativepredictivevaluesofbothwhitecellcountandultrasoundprovedthatneitherofthesemeasurementswasaccurateinthediagnosisofacuteappendicitis.Mostofourpatientswithcomplicateddiseasepresentlate,withthemost common reasons for this delay being lack of access to a medical clinics and prior treatment by generalpractitioners.Complicationswerehigherinmalesandinthoseaged45yearsandabove.
Keywords: *Acuteappendicitis;Complications;Delayedpresentation;Negativeappendicectomy*

Date of Submission: 01-10-2021 Date of Acceptance: 15-10-2021

I. Background

Appendicectomy is the most common emergency surgical procedure worldwide. About 8% of people in Westerncountries will have appendicitis during their lifetime, andthe incidence in the UK is about 52 per 100,000 population. However, in South Africa, the incidence is estimatedto be less than 9 per 100,000. The peak incidence of acuteappendicitisisbetween10and30yearsofage.

The diagnosis of acute appendicitis is mainly clinicaland presentation of acute appendicitis may be typical oratypical.Typicalpresentationstartswithvagueperiumbilical pain for several hours, which later migrates tothe right iliac fossa (RIF), associated with lack of appetite, nausea, or vomiting. Atypical histories lack this typical progression and may include pain in the right lowerquadrantasaninitialsymptom.

If left untreated, acute appendicitis may lead to complications, leading to inflammatory mass,appendix abscess,orrupture,withgeneralizedperitonitis.Diagnosisofcomplicatedacuteappendicitisisclinicallysuppleme ntedby ultrasound or CT scan . However, it is common inpractice to admit and observe patients with an uncertaindiagnosis and to delay their surgery until the diagnosis ismore definite in order to reduce the negative appendicectomy rate.

Pre-admission delay on the part of the patientand post-admission delay by the surgeon are responsiblefor combined delay in diagnosis and definitive management.

II. Methods

Thiswasaprospective observational study of patients12 years and older (as 12 years is a lower age cut-off foradmission), diagnosed and treated for acute appendicitis atGOVERNMENT GENERAL HOSPITAL , VIJAYAWDA fromAPRIL 1st 2020 toSEPTEMBER 31st 2020.

Patients' fileswerereviewedonadmissionandafterdischarge. Data retrieved included patients' demographics, clinical presentation, and duration of symptoms beforepresentationtothehospital,resultsofdiagnosticinvestigationsandevidenceofcomplicateddiseaseatpresentation,length of hospital stay, intensive care unit(ICU) admission, negative appendicectomy, and mortalityrate.

Sensitivity, specificity, positive predictive value (PPV)and negative predictive value (NPV) of diagnostic investigations were calculated. An Excel sheet was used fordatacollectionandStatisticawasusedforstatisticalanalysis.

Permissiontoconduct the study was received fromtheHumanEthicsCommitteeoftheGGH , VIJAYAWADA..

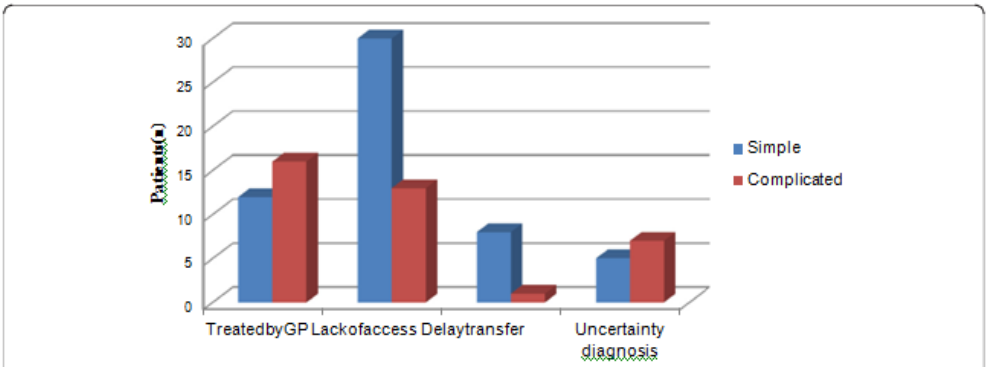

Figure1Reasonsfordelayscomparedtotheoccurrenceofcomplicatedappendicitis.

III. Results:

A total of 146 patients were diagnosed with acute appendicitis.Themaletofemaleratiowas 1.6:1 and theirmeanagewas26years(SD=12years).Thedurationofsymptoms was 4.5 days (SD = 4 days) and 63% of the patients presented more than two days after the onset ofsymptoms.Overall,the complicated appendicitis ratewas30%,withthemostcommonreasonfordelayinpresentation being a lack of access to hospitals or clinicsand toinformation(29%), and prior treatment by gen-eralpractitioners(19%)

Common presenting symptoms were RIF pain (95%),vomiting (73%), and 31% had a typical acute appendicitispresentationand80%hadnausea.

Thefollowinginvestigationswereundertaken: whitecell count (WCC) in 95%, C-reactive protein (CRP) in89%, abdominal ultrasound in 40%, CT scan in 6%, anddiagnosticlaparoscopyin7%ofthe146patientsincludedinthisstudy.ThemedianWCCandCRPwere11.5 (8.7–15.4) and 80.5 (30.3–171.3), respectively. Thesensitivity, specificity, PPV, and NPV percentages of allinvestigationswereasillustratedinTable4.

The majority of our patients (89%, 131/146) were operated on soon after admission. Histology resultsshowed perforated appendix with or without generalizedperitonitis in 41 patients (29%) and normal appendix in11% ofcases.

Themortalityratewas1.37%(2/146); patients whodied were above 45 years of age, with comorbidities andhaving had more than two re-operations. There was a statistically significant difference in duration of symptoms,length of ICU and hospital stay, re-operation, and mortal-ity in patients with complicated appendicitis when com-paredtouncomplicated appendicitis..

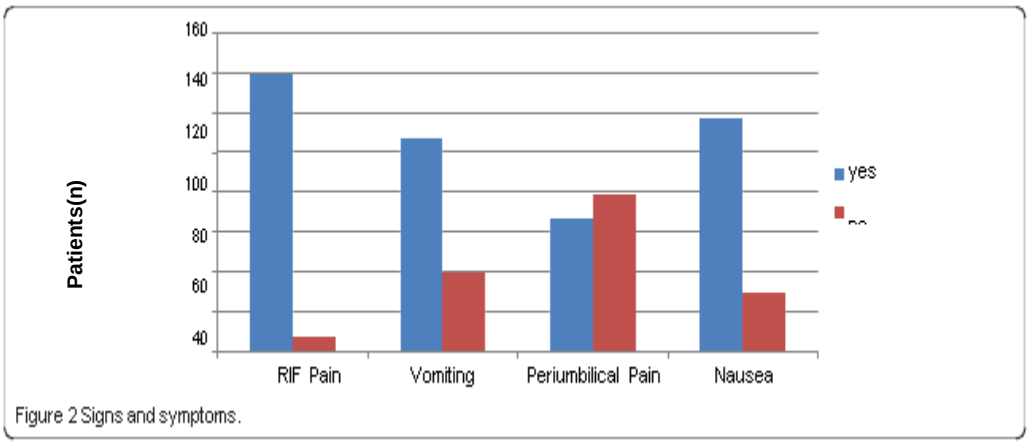

Figure 2 Signs and symptoms.

IV. Discussion

Our study involved 146 patients out of a total of 3,994patientsadmitteduringasix-monthperiodtotheDepartment of Surgery at GGH, VIJAYAWADA. Signs and symptomsofacuteappendicitisweredominatedbyabdominalpainfelt in the RIF in 95% of patients, vomiting in 73%, andnausea in 80%, while the typical clinical presentation asdescribedin the standard textbooks was found in 31%ofthe146studiedpatients.Theoverallcomplicatedappendicitis rate was 31%. We estimatethecurrent averagein our hospital at25cases per month. In the literature, the peak incidence of acute appendicitis worldwide is between 10 and30 years of age . In agreement with this, our studyshowsthatacuteappendicitisiscommoninyoungadults with an average age of 26 years (SD = 12 years);62%(91/146)ofpatientsincludedinour study weremale,whichconfirmspreviousfindingsthat67%(143/212)and 33% (69/212) of patients presented with acute appendicitistoGGHweremaleandfemale,respectively.Indeed, our study shows a statistically significant differenceintheoccurrenceofcomplicatedappendicitisregardinggender.Mostimportantly,thisfindingfurtherconfirmsthepredominanceofacuteappendicitisinyoung males.

Theaveragedurationofsymptomsinourstudywas4.5 ± 4 days. Compared to other studies, the average duration of symptoms before seeking medical attention washigh, which might explain the heightened rate of complicated appendicitis found in our study. Importantly,ourstudyconfirmsa statistically significant difference in patients with un-complicatedandcomplicatedappendicitisaftertwodaysofsymptoms(P<0.001).Indeed,ourfindingisin agreement with various studies showing that the rate of com-plicatedappendicitisincreasedtwodaysafteronsetofsymptoms. {Hayden et al. reported the risk of perforation at 70% after 48 hours of symptom onset [14].Eldar et al. showed that the risk of perforation is minimalbefore 36 hours after onset of symptoms, but increasesthereafter}.

Thepresentstudyincludedallthestandarddifferentinvestigations required in the diagnosis of acute appendicitis cases. We found the inflammatory marker, CRP,sensitive in up to 92% of cases and WCC in 48%, withNPVs of CRP and WCC being 50% and 28%, respectively. Ahmad et al. found the CRP sensitivity to be 93%and the specificity 86%, while the total leukocyte counthad a NPV of 50% and CRP had a NPV of 50% .Bearinginmindthatultrasound is operator-dependent,wefoundsensitivityto be60%,specificity66%,PPV86.9%, and NPV 31%. In contrast, Al-Ajerami found anultrasound sensitivity of 84.8% and a specificity of 83.3%,withaPPVandaNPVof93.3%and66.7%,respectively. In general , ultrasound seems to have better PPV than NVP. Our study shows, as many previous studies have shown, that CT scanning is the best method of investigation to confirm or to invalidate the diagnosis of appendicitis.

Our study shows that 63% of patients presented with delays, with the major reason for delay being lack of disease awareness and health facilities. Of those who presented late, 30%had self medicated;19% of delayed presentations had been treated previously by general practitioners and most of them treated conservatively with antibiotics and analgesics. Thirty percent of acute appendicitis cases in our study were complicated and found the rate of perforation is 22%.

. Ourstudyshowsthat outcome strongly depends onthe presentation of acute appendicitis (uncomplicated orcomplicated),theageatpresentation,thedurationofsymptoms,re-operations,andICUstays of more thantwodays,andthathospitalstaysoflongerthantwodays incomplicated appendicitis were

significant
comparedtocasesofuncomplicatedappendicitis.Thiswasalsofoundinotherstudieswhichassessedtheoutcome incases of acute appendicitis . In our study, the over-all mortality rate is 2/146 (1.37%); patients who died wereabove 45 years of age. Our mortality rate was acceptablecompared to acceptable mortality rate of <1%.

Furthermore,ourstudy shows that elderly patientswho contract acute appendicitis have an atypical clinicalpresentation,mostoftenwithassociatedco-morbiditiessuch as diabetes and hypertension. For this reason, theelderlypatientrequiresparticularattention:thecorrectdiagnosis to be made as soon as possible and accurateinvestigations being essential if there is any doubt in thediagnosisofpossibleappendicitis.

V. Conclusions

Patients with acute appendicitis rarely present with a typ-ical history of vague peri-umbilical pain. Leukocyte countis not reliable in the diagnosis of acute appendicitis. Mostofourpatientspresentlate,withcomplicateddiseases,and the most common reason for delay in presentationbeing a lack of disease awareness and/or health facilitiesand prior treatment by general practitioners. Complica-tionswerehigherinmalesand theelderly.

TABLE 1- RESULTS OF CLINICAL FINDINGS AND DIAGNOSTIC INVESTIGATIONS IN ALL PATIENTS

INVESTIGATIONS	SENSITIVITY%	SPECIFICITY%	PPV%	NPV%
FEVER (N=146)	18	83	95	5
WCC (N=139)	48	75	84	28
CRP(N=135)	92.5	24	80	50
USG (N=60)	60	66	89	31
CT SCAN (N=6)	100	100	100	100

Table-2 HISTOLOGICAL FINDINGS

HISTOLOGY FINDINGS	NUMBER (%)
PERFORATED APPENDIX / GENERALISED PERITONITIS	41(28.7)
GANGRENOUS APPENDICITIS	9(6.6)
INFLAMED APPENDIX	38(26)
NORMAL APPENDIX	16(10.9)
MISSING	42(28.7)

TABLE 3 COMPARISON OF COMPLICATED AND UNCOMPLICATED APPENDICITIS

PARAMETER	UNCOMPLICATED NUMBER(%)	COMPLICATED NUMBER(%)	P VALUE
MALE	56(55.45)	35(77.78)	0.01
FEMALE	45(44.55)	10(22.22)	
AVERAGE ±SD	26±12	25±13	0.791
DURATION OF SYMPTOMS			
<2 DAYS	39(38.61)	2(4.44)	<0.001
>2 DAYS	62(61.39)	43(65.56)	
PREVIOUS GP TREATMENT	12(42.86)	16(57.14)	<0.001
TEMPERATURE			
<37.5°C	87(70.16)	8(36.36)	0.514
>37.5°C	14(63.64)	8(36.36)	
WCC			
$<12x10^9/L$	49(35)	25(18)	0.102
$>12x10^9/L$	39(28)	25(18)	
CRP			
<10MG/L	13(14)	1(3)	0.06
>10MG/L	79(86)	36(97)	
ICU ADMISSION			
<2 DAYS	5(4.95)	9(20)	<0.001
> 2 DAYS	1(0.99)	11(24.44)	
HOSPITAL STAY			
<2 DAYS	39(38.61)	2(44.44)	<0.001
>2DAYS	62(61.39)	43(95.56)	
MORTALITY	0(0.00)	2(1.37)	<0.001

References:

[1]. Hobler, K. (Spring 1998). "Acute and Suppurative Appendicitis: Disease Duration and its Implications for Quality Improvement" (PDF). *Permanente Medical Journal*. **2** (2).
[2]. *Harrison's principles of internal medicine*(18th ed.). New York: McGraw-Hill. pp. Chapter 300. ISBN 978-0-07174889-6. Archivedfrom the original on 30 March 2016. Retrieved 6 November 2014.
[3]. *Schwartz's principles of surgery* (9th ed.). New York: McGraw-Hill, Medical Pub. Division. 2010. pp. Chapter 30. ISBN 978-0-07-1547703.
[4]. "Surgical and Clinical Review of Acute Appendicitis" (PDF). *International Journal of Multidisciplinary and Current Research*. **4**. ISSN 2321-3124.

DR . P.SRI HARSHA, et. al. "Clinicalpresentationofacuteappendicitisinadults at government General Hospital, Vijayawada." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(10), 2021, pp. 39-43.