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POST OPERATIVE COMPLICATIONS IN PATIENTS OPERATED FOR APPENDICITIS, AN EXPERIENCE IN PIMS PESHAWER.

MUHAMMAD KHAN, MUHAMMAD UZAIR, MUHAMMAD IFTIKHAR, MUNIR AHMAD

1. General Surgery Pak International Medical College Peshawar, Peshawar Institute of Medical Sciences (PIMS).

ABSTRACT

BACKGROUND: Appendicitis is one of the most common acute abdominal states of illnesses. Most of the patients presented to our surgical emergency department are suffering from acute appendicitis. Early diagnosis and treatment reduce the mortality and morbidity of acute appendicitis significantly. The aim of the study was to determine the post operative complications of acute appendicitis.

OBJECTIVE: The objective of this study is to know postoperative complications of open appendicectomy and its related morbidity and mortality in patients presenting to PIMS Hospital Peshawar, KPK.

MATERIAL AND METHODS: This study was conducted in General Surgical Unit, Peshawar Institute of Medical Sciences (PIMS) from June 2015 to July 2016. The design of the study was descriptive type. Patients coming to emergency or surgical OPD were examined after detail history, investigation and then operated. Postoperative complications of appendicectomy along with other findings were noted.

RESULTS: 100 patients were admitted and operated, 86% were male and 14% female, 54% were in the age range of 21-30 years. Most (80%) presented with pain right iliac fossa of 1 day duration, majority (76%) presented in typical way. mass formation was found in 9% cases. Inflamed appendix was commonest in (82%) cases, perforated appendix (12%) and normal appendix found in (6%) cases. Among the complications, wound infection was recorded in (20%), intra-abdominal abscess (8%), paralytic ileus (5%), intestinal obstruction (4%) and (1%) case of each DVT, bleeding and death were noted.

CONCLUSIONS: variations in signs and symptoms lead to delay in diagnosis and high rate of pos-op complications like wound infection , intra-abdominal abscess , paralytic ileus , intestinal obstruction , DVT, bleeding and death.

KEY WORDS: appendicitis, post-operative complications.

INTRODUCTION

Acute appendicitis (AA) is one of the most common surgical abdominal emergencies. Early diagnosis and treatment could reduce the mortality and morbidity of acute appendicitis significantly.[1]

Acute appendicitis used to be called as the disease of developed countries with an association of high protein intake, but it is also increasing in developing countries.[2]

About 250,000 appendicectomies are performed in the United States annually, with 2000 deaths resulting from complications of the disease. One in 15 persons develops appendicitis during his or her life time.[3] On average more than 50000 procedures are performed annually in the UK.[4]

In Western countries about 8% of people will have appendicitis during their lifetime, and the incidence in the UK is about 52 per 100,000 population. However, in South Africa, the incidence is estimated to be less than 9 per 100,000. The peak incidence of acute appendicitis is between 10 and 30 years of age.[5,6]

The diagnosis of acute appendicitis is mainly clinical and presentation of acute appendicitis

may be typical or atypical. Typical presentation starts with vague periumbilical pain for several hours, which later migrates to the 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 lower quadrant as an initial symptom.[7]

Acute appendicitis needs prompt diagnosis and treatment to minimize the associated morbidity and complications.[8] The complication rates are more in first 48 hours of presentation.[9,10]

Worldwide, the standard of care for appendicitis is appendicectomy and is considered generally a "routine and safe operation". However, the mortality rate of appendicectomy ranges from 0.07 to 0.7% and from 0.5 to 2.4% in patients without and with perforation, respectively.[11,12] Although relatively low, mortality associated with an emergency appendectomy is age related and seven times higher than the general population matched per age and gender.[11] Meanwhile, overall post appendicectomy complication rates are around 10-19% for AA without perforation and can reach 30% for perforated AA.[13-15] The peri-operative morbidity rate for removing a normal appendix in patients suspected of having AA is the same as that for intervention in non-perforated AA.[16,17]

The objective of our study was to record various postoperative complications of appendicectomies .

MATERIAL AND METHODS

This descriptive study was conducted in General Surgical Unit of 'Peshawar Institute of Medical Sciences' (PIMS) from June 2015 to July 2016. All the patients coming to emergency surgical ward were admitted and then examined after taking detailed history. The patient were investigated i-e TLC, urine R/E, X-ray abdomen errect and ultrasound abdomen were done in all cases. After making final diagnosis of acute appendicitis, the patients of age (11 to 70 years) were included in the study and those unfit for anaesthesia were excluded. Those patients having right lower quadrant pain due to other causes than appendicitis were also excluded from the study.

Patients were prepared for general anesthesia after admission and then operated as soon as possible in emergency ward and all the complications of appendicectomies recorded on the chart. At the end all the results were analysed for descriptive statistics.

RESULTS

A total of 100 patients were included. Majority of patients 86% were male while 14% were female with a ratio of 06.14:1. 54 (54%) were in the age range of 21-30 years, followed by 20 (20%) in the age range of 31-40 years. Age range was from 11-70 years with mean age of 31.37 ± S.D 11.17 years (Table No. 1).

TABLE NO. 1: AGE AND SEX-WISE DISTRIBUTION OF THE PATIENTS (n=100)

FINDINGS	NO. OF CASES	PERCENTAGE
Sex		
Male	86	86%
Female	14	14%
Age ranges:		
11 – 20 years	02	02%
21 – 30 years	54	54%
31 – 40 years	20	20%
41 – 50 years	11	11%
51 – 60 years	07	07%
61 – 70 years	06	06%

Male to female ratio= 06.14:01
Minimum age = 11 years
Maximum age = 70 years
Mean age = 31.37 years
Standard deviation = ± 11.17

Most of the patients (80%) presented with pain right iliac fossa of 1 day duration. Twenty (20%) patients presented with pain of more than 2 days to 1 week duration. Clinical presentation showed that majority of cases (76%) present in typical way while gastrointestinal and urinary symptoms were

less frequent. Signs were predominately local. Mass formation was found in 9% cases.

Forty-five (45%) patients presented with shifting pain from epigastrium, and 15% patients shifting pain from umbilical region . 40% of the patients presented with non-shifting pain in right iliac fossa . (Table No. 2).

TABLE NO. 2: CLINICAL PRESENTATION AND SIGNS & SYMPTOMS IN PATIENTS (n=100)

FINDINGS	NO. OF CASES	PERCENT AGE
Pain right iliac fossa of 1 day duration	80	80%
Pain right iliac fossa of more than 2 days to 1 week duration	20	20%
Typical way presentation	76	76%
Gastrointestinal and urinary symptoms	04	04%
Mass formation	09	09%
Predominately local signs	11	11%
Shifting pain from epigastrium	45	45%
Shipting Pain from umbilical region	15	15%
Non-shifting Pain right iliac fossa	40	40%

On operation, inflamed appendix was most common finding in 82 (82%) cases, followed by perforated appendix 12 (12%) and normal appendix was found in 6 (6%) cases. Among the postoperative complications, wound infection was recorded in 20 (20%) cases, intra-abdominal abscess 8 (8%), paralytic ileus 5 (5%), intestinal obstruction 4 (4%) and one (1%) case of each DVT, bleeding and one death were noted (Table No. 3).

TABLE NO. 3: POST-OPERATIVE COMPLICATIONS (n=100)

Wound infection	20	20%
Intra-abdominal abscess	08	08%
Paralytic ileus	05	05%
Intestinal obstruction	04	04%
Deep vein thrombosis (DVT)	01	01%
Bleeding	01	01%
Death	01	01%

DISCUSSION

Acute appendicitis (AA) is a very common disease with a life time risk of 7-8%, the highest incidence found in the second decade of life.[18] Appendicitis is the most common cause of acute abdomen in all age groups. Almost 10% of the general population develops acute appendicitis with a highest incidence in the second and third decades of life.[19]

Age and co-morbidities increase the percentages of mortality after appendectomy for appendicitis up to 0.1%, 2.6%, 6.8%, and 16.4% in patients aged 40, 70, 80, 90, respectively.[11]

In the literature, the peak incidence of acute appendicitis worldwide is between 10 and 30 years of age,[5] and in a study the mean age was 26 years (SD = 12 years).[20] In agreement with this, our study shows that acute appendicitis was common in young adults with an average age of 31.37 with SD=11.17 years while maximum numbers were in the age range of 21-30 and 31-40 years respectively.

Men having life time risk of acute appendicitis is about 8.6% and female having 6.7%.[21] In a study the male to female ratio was 1.6:1.[20] In contras our study showed that male to female ration was 06.14:1. Indeed, our study shows a statistically significant difference (86% male and 14% females) in the occurrence of complicated appendicitis regarding gender. Most importantly, this finding further confirms the predominance of acute appendicitis in young males.[20]

In this study 86% of patients included were male, which confirms previous findings that 67% (143/212) and 33% (69/212) of patients presented with acute appendicitis to a hospital were male and female, respectively.[22] In another study of Styrud J, et al,[23] males were in preponderance to females with a mean age of 20 years. Similarly in another study of 50 patients there were (26) 52% males and (24) 48% females.[24]

In our study majority (80%) patients had pain in right iliac fossa while in a study common presenting symptoms were RIF pain (95%), vomiting (73%), and 31% had a typical acute appendicitis presentation and 80% had nausea. The majority of patients (89%, 131/146) were operated soon after admission. Histology results showed perforated appendix with or without generalized peritonitis in 41 patients (29%) and normal appendix in 11% of cases.[20]

Another study having 50 cases, migrating right iliac fossa pain was present in (45 patients) 90% and rebound tenderness in right lower quadrant was present in (30 patients) 60%, tenderness was present in (41 patients) 82% and pyrexia was present in (33 patients) 66%, anorexia was present in (30 patients) 60%, nausea/vomiting were present in (38 patients) 76%.[24]

In our study majority of patients were presented within 1 day of onset of pain in RIF, while 20% presented within 2 days and up to 1 week. The average duration of symptoms in one study was 4.5 ± 4 days. Compared to other studies, the average duration of symptoms before seeking medical attention was high, which might explain the high rate of complications, found in our study. Victor et al[25], found that the mean duration of illness prior to seeking medical attention was 3.7 days, while Chamisa[26], at Prince Mshiyeni Memorial Hospital, found delays of 4 ± 3.5 days in presentation.

A recent study[20] confirms a statistically significant difference in patients with uncomplicated and complicated appendicitis after two days of symptoms (P <0.001). Few other studies showing that the rate of complicated appendicitis increased two days after onset of symptoms[6,27,28]. Hayden et al[28], reported the risk of perforation at 70% after 48 hours of symptom onset. Eldar et al[29], showed that the risk of perforation is minimal before 36 hours after onset of symptoms, but increases thereafter.

One study[20] 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 the delayed presentations had been treated previously by general practitioners and most of these patients had been put on antibiotics. Thirty percent of acute appendicitis cases in our study were complicated appendicitis. Levy et al[22], in their audit of 1997, found the rate of perforation to be 22%. Madiba et al[30], at King Edward VIII Hospital in Durban, showed a perforated appendicitis rate of 34% and has associated this with delayed presentation.

Late diagnosis and surgical intervention is regarded as an important cause of morbidity in acute appendicitis. Delay in treatment results in complications like perforation, but there are controversies as to whether preadmission or post admission delay is more important.[19] In present study we have found that inflamed appendix was most common finding in 82(82%) cases, followed by perforated appendix 12 (12%) and normal cases were 6 (6%) during operation.

In a local study[31] 6 (17.1%) patients treated surgically, developed postoperative complications. The overall postoperative complication rates are around 10 to 19% for acute appendicitis without perforation and reach 12 to 30% for perforated appendicitis[32,33].

In this study overall complication rate was 40% comprising of wound infection in 20 (20%) cases, intra-abdominal abscess in 8 (8%), paralytic ileus in 5 (5%), intestinal obstruction

in 4 (4%) and one (1%) case of each DVT, bleeding and death were noted. While in other studies mortality rates following appendectomy range from 0.07 to 0.7% and from 0.5 to 2.4% for appendicitis without or with perforation, respectively[11]. However, mortality is not strictly linked to the degree of inflammation/ complication, but it is also related to the trauma of anaesthesia and surgery[34,35]. Blomqvist et al[11], published a very interesting epidemiological study of appendectomies performed in Sweden. In that study, appendectomies performed for nonspecific abdominal pain and for other diagnosis showed a case fatality rate of 1.87 and 9.89 respectively. For patients operated for suspected AA but discharged with non-specific abdominal pain diagnosis, the cause of death was non-abdominal in 70% of cases. A more recent retrospective analysis conducted using data from the US National Inpatient Sample from 1998 to 2007 described the rate of negative appendectomy of 11.83% and among these patients mortality was 1.07%[36]. Age and co-morbidities increase the percentages of mortality after appendectomy for appendicitis up to 0.1%, 2.6%, 6.8%, and 16.4% in patients aged 40, 70, 80, 90, respectively[11].

In another study the mortality rate was 1.37% (2/146); patients who died were above 45 years of age, with comorbidities and having 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 mortality in patients with complicated appendicitis when compared to uncomplicated appendicitis[20].

A local study reported that the situation is different in our area; people are poor and illiterate, they present late. Therefore complication rate may be higher, understanding the complications of acute appendicitis, will help to manage these patients properly and decrease the morbidity and mortality. The complications of appendicitis include; appendicular perforation, appendicular mass, appendicular abscess, gangrene of the appendix, portal pyemia leading to liver abscess and intestinal obstruction. Once appendicitis progresses to complications, the morbidity increases and in some cases it may prove fatal[37].

Death due to acute appendicitis is now rare (mortality rate, 0-2.4%). Different factors are responsible for perforation in acute appendicitis in different age groups and this can be explained by the difference in immune status and aetiologies of appendicitis. Appendicectomy is relatively safe with a mortality rate for non-perforated appendicitis of 0.8 per 1,000 and mortality after perforation of 5.1 per 1,000. Delaying the diagnosis and operative intervention can lead to increase morbidity and mortality[38].

The mortality rate is more than 20% in patients older than 70 years because of delayed diagnosis and hospitalization, and delayed treatment. The high incidence of co-morbidities and the wide range of differential diagnostic possibilities in this age group are also factors[39].

Causes of delay in diagnosis and treatment of acute appendicitis are many like delaying at home (home remedies), local doctors, homeopathic, quacks, and medical practitioners, etc. Complicated appendicitis can lead to high morbidity, mortality, prolonged hospital stay and financial burden[40].

Acute appendicitis can proceed to gangrene, perforation, appendicular mass, abscess, localized or generalized peritonitis if not readily diagnosed or treated in time. As the late presentation of acute appendicitis can proceed to gangrene and perforation therefore it needs to be diagnosed and treated as early as possible. In children the perforation occurs within 8 to 24 hours while in adolescents and young children it occurs within 36 hours[41].

CONCLUSIONS

Delay in diagnosis leads to more complications like perforation, mass

formation and peritonitis etc. Keeping in view the various postoperative complications of appendicectomy and their related morbidity and mortality, the key to diagnosis is repeated examination and assessment and early surgery. Wound infection, intra-abdominal abscess, paralytic ileus, intestinal obstruction were the commonest postoperative complications in our study.

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CORRESPONDENCE ADDRESS
Name: Dr. Mohammad Khan
Address: Associate Professor,
General Surgery, Pak International Medical College
Plot no-2-sector B-2 Phase-5, Hayatabad Peshawar
Mob No: 03339108136
EMAIL: drmkhanwazir@gmail.com