Acute Appendicitis
A Prospective Study Of 128 Cases In 2nd March Hospital-Sebha

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Summary
In a prospective study, 128 patients diagnosed as acute appendicitis were admitted to general surgery department of 2nd March hospital.72 were male, 56.25%, with mean age of 24.5 yrs and 56 were female, 43.75%, with mean age 23.5 yrs. Total mean age of 24 yrs range 4-66 yrs.
32 cases are perforated, 25%. 11 cases presented with periappendicular mass, 8.59%. 15 patients operated with normal appendix 12.8%.
7 patients developed wound infection 5.98%, all were perforated.

Key words: Acute appendicitis, complications, risk factors.

Introduction:
Appendicitis remains the most common surgical emergency of the abdomen. Early consultation followed by suspicion, diagnosis, admission, and early appendicectomy, is the mainstay in the management of acute appendicitis, and the prevention of the pre- and postoperative complications.
Earlier in the 19th century Melier gave a classical description of appendicitis and stated that it was often responsible for pain in the right lower abdomen, and can be curable by appendicectomy.[6]
In 1887 Morton first successfully removed the appendix with the intention of curing appendicitis.[6]
In 1902 Sir Fredrick Treves did much to popularize the condition by removing the appendix of the Prince of Wales.[6]

Aim of the study:
This prospective study is aimed to study epidemiology of acute appendicitis in this part of the country with special regard to the incidence of normal appendix and incidence of perforation with possible risk factors.

Materials and methods:
This prospective study included 128 patients admitted to 2nd March teaching hospital of Sebha medical college. We received pts From Sebha city and referred cases from other 5 regional hospitals ranging 70-200 Kms far.
The study period was from 1st January 2002 till 31st December 2002. It included patients diagnosed as acute appendicitis with or without complications (perforation, mass).
Investigations were urgently performed, Hb, TLC, DLC, Blood sugar, urea, serum electrolytes and CXR.
ECG was performed for patients aged 40 and above. Ultrasound examination was specifically requested for patients with RIF mass, and patients with gynecological or urinary tract symptoms and those with equivocal signs to exclude other pathology than acute appendicitis.[7] Also urine analysis was done.
Patients with equivocal symptoms and signs were kept under observation for 24 hrs, repeated TLC. And a decision was taken either to operate or otherwise accordingly.
Patients proved with periappendicular mass were treated conservatively,[4] with repeated ultrasound examination and daily recordings of pulse, temperature and close follow up, when abscess diagnosed, patiens were operated on, otherwise interval appendicectomy was carried out 6 weeks later.
All patients with the likelihood of perforated appendicitis were started on intravenous fluids, nasogastric aspiration, and triple antibiotics (ampicillin, gentmycin& metronidazole), which were continued postoperatively for 7 days.[5]
A right lower paramedian laparotomy incision was performed for perforated cases, peritoneal lavage by warm saline and drainage through a separate stabwound.
Patients of acute appendicitis were operated through a grid-iron incision and antibiotics started postoperatively. Patients started on oral fluids after passage of flatus.

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Results:

In a prospective, study 128 patients diagnosed as acute appendicitis were admitted and managed. 72 males, 56.25% and 56 females, 43.75% with a male to female ratio of 9:7, including all age groups and both sexes ranging from 4-66 with mean 24 years. Males ranged from 5-55 with mean 24.5 years and female range of 4-66 with a mean 23.5 years.

Table No. 1 shows the age distribution per decade with the largest age group in the 3rd decade, 44 patients, and 34.37 % of total.

117 patients were operated for acute appendicitis and 11 patients presented with appendicular mass, have been treated conservatively. Of the operated cases, 70 non-perforated, 59.82 %. 32 perforated, 27.35 % and 15 normal, 12.82 %. The highest incidence of perforation in the 4th decade, 12 out of 32, 37.5 %. Of the 15 normal appendixes, 14 cases 93 % were female. 3 with positive findings-terminal ileitis, acute salpingitis and a third subserous uterine fibroid.

The temperature and white blood cell counts were important findings in our patients. Mean temperatures were elevated in all cases of acute appendicitis complicated and non-complicated, in contrast to normal appendix with mean temperatures in the normal range 37.3ºC. (Table No. 2).

The mean TLC count was elevated, 64.84 % had a temperature > 10,000/mm3. Mean temperature of the total 11,108/mm3 with a range $4x10^3$-$23x10^3$/mm3. 73.3% of the normal cases had TLC <10,000/mm3 that is expected. (Table No. 3).

Time from onset of symptoms till admission is considered an important factor in development of complications. Table No. 4 shows a marked increase in mean time concerning complicated compared to non-complicated acute appendicitis. Table No. 5 shows a remarkable rise in the mean time from admission to surgery in consideration of perforated compared to non-complicated acute appendicitis.

Hospital stay in days ranged between 2-29 for total cases with a mean of 4.7 days. (Table No. 6).

Of the 117 patients operated as acute appendicitis, 7 patients developed wound infection for which the wound was opened and drained. All were perforated. One patient developed chest infection, another with residual pelvic abscess drained rectally and a 3rd had acute renal failure with uncontrolled hypertension. No mortalities were reported. (Table No. 7)

Age incidence:

Age	Non- perf +Mass	Normal	Perforated	Total	Incidence of perf %
1-9	7	1	6	14	42.8
10-20	23	5	9	37	24.3
21-30	35	7	2	44	4.54
31-40	11	2	12	25	48
41-50	3	0	2	5	40
51-60	1	0	1	2	50
> 60	1	0	0	1	0
Total	81	15	32	128	25

Table 1-A *The Range is 4-66.* *The Mean is 24 years.*

age	Males	Females
1-9	6	8
11-20	21	16
21-30	24	20
31-40	16	9
41-50	4	1
51-60	1	1
> 60	0	1
total	72	56
128		

Table 1-B Age and sex incidence *Males* 56.25 % *Females 43.75 %*

Temp	Non-complicated	Perforated	Mass	Normal	Total
<38 c°	38 54.28%	6 18.75%	4 36.36%	11* 73.33 %	59 46%
38-39 c°	30 42.85%	23** 71.87%	7** 63.63%	4 26.66%	64 50%
>39 c°	2 2.85%	3 9.37%	0	0	5 4%
Range	36.5-39.5c	37-40.8 c°	37-39 c°	36.5-38 c°	128
Mean	37.7 c°	38.4c°	38 c°	37.3 c°	

Table No. 2
Temperature distribution
** The highest percentage of cases with temp < 38 c° recorded with normal appendix 73.33%.*
*** It can be noticed that high percentage of cases with temp 38-39 c° is recorded with perforated 71.87% and mass 63.63 %.*

TLC distribution

TLC	Non perf	Perforated	Mass	Normal	Total
<10,000	24 34.28%	6 18.75%	4 36.36%	11 73.3%	45
10,000-15,000	36 51.4%	17 53.1%	4 36.36%	3 20%	60
>15,000	10 14.28%	9 28.1%	3 27.27%	1 6.6%	23
Range	4000-19,500	4,000-23,000	5,700-22,000	4,000-19,000	128
Mean	10,624	13,211	12,577	8,980	

Table No. 3
Time from onset till admission

Time	Ac.app	Perf	Mass	Normal	Total
<12 hrs	39	10	2	2	35
12-24 hrs	27	16	3	9	55
> 24 hrs	4	24	6	4	38
Range	1-48	3-96	7-192	2-96	1-192
Mean	12.3	24.4	59	30.4	21.48

Table No. 4
Time from admission till operation

Time	Acute appendicitis	Perforated	Normal	Total
<5hrs	20	8	2	30
5-10 hrs	32	14	6	52
> 10 hrs	18	10	7	35
Total	70	32	15	117
Range	1-48	2-72	3-72	1-72
Mean	8.8	15	18.4	11.8

Table No. 5
Only 117 cases out of 128 were operated.
11 cases treated conservatively as app. Mass.

Hospital stay in days

Days	Ac. app	Perf.	Mass	Normal	Total
< 5	64	7	3	12	86/ *67%*
5-10	6	18	7	3	34/ *26.5%*
> 10	0	7	1	0	8/ *6.25%*
Range	2-6	3-29	3-11	2-6	2-29
Mean	3.1	7.9	6.45	3.8	4.7

Table No. 6

Postoperative complications

No.	Complication	Age (y)	Referred from	Appendicitis	Med. problems	Duration of symptoms.
1	Wound infection	40	Gatroun H.	Perforation	----	4d
2	Wound infection	12	Oubari H.	Perf/abscess	----	7d
3	Wound infection	7	Burgen H.	Perforation	----	8d
4	Wound infection	35	H.casuality	Perforation	----	3 hrs
5	Wound infection	18	H. Causality	Perforation	----	3d
6	Wound infection	34	H. Causality	Perforation	----	3d
7	Wound infection	32	H. Causality	Perforation	----	3hrs
8	Pelvic collection	40	Oubari H.	Perforation	----	2d
9	Acute renal failure	50	Murzok H.	Perforation	Hypertension	3d
10	Pneumonia	55	Murzok H.	Perforation	DM, SVT	4d

Table No – 7

Discussion:

In this study a male to female ratio is 9:7 or 1.28:1, this is comparable to 1.3: 1 by Rosemary et al.[9] The rate of normal appendix underwent surgery was 12.8% compared to 16%,[9] 14.5%[3] and 15.9%.[1] Female comprising 93 % others had 68 %.[9]

Perforated appendicitis represented 25% of the operated cases with highest incidence in 4th decade 48%. Barouni[1] had 20.1% incidence of perforation with highest incidence 47.3% in the 4th decade. Perforation in children represented 42.8% compared to 46.6% by Barouni and 47% by Gamal.[8]

The duration of symptoms is an important risk factor for development of complications.The mean time for perforation and mass is 24.4 and 59 hrs respectively, while 12.3 hrs for acute non-complicated appendicitis.

The mean time from admission to surgery is 11.8 hrs with high values for perforation 15 hrs and normal 18.4 hrs. We refer this to: -

* Cases of appendicular mass on admission were treated expectantly and only if signs of abscess develop are then operated. Also a busy theatre with a single anesthetist.

A patient operated for normal appendix have the highest mean time interval because of prolonged period of observation. Mean hospital stay in days is 4.7 compared to 3.7 by others.[3] Hospital stay is prolonged with complicated cases 7.9 and 6.45 days.

Our postoperative complications represent 8.5 %, wound infection represents 5.9%. 70% of complicated cases have symptoms for 3 days and more. Helmer et al[2] found 9% incidence of wound infection.

Rosemary et al[9] found 3% postoperative complication and 47% patients with perforation.

Conclusion:

Proper knowledge and understanding of the pathology and differential diagnosis of pain at right iliac fossa with special attention to appendicitis and its early diagnosis by all doctors working in the periphery, also early consultation are all among the important factors to minimize morbidity associated with acute appendicitis.

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