



EFFICACY OF MODIFIED ALVARDO SCORE AND DIAGNOSTIC LAPAROSCOPY IN DECREASING NEGATIVE APPENDICECTOMY RATE IN FEMALES OF CHILD BEARING AGE GROUP (15-45 YEARS).

KEYWORDS

Acute appendicitis, modified Alvardo score, abdominal pain.

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ABSTRACT

Two hundred female patients, attending general surgery OPD and emergency department w.e.f October 2014 till October 2016 with complaint of pain in abdomen were included in this study.

One main complaint of all these patients was pain in right lower abdomen. All these patients were scored by modified Alvardo score. If the score is less than 4 then conservative treatment was given. In equivocal modified Alvardo score (5&6) further evaluation by radiological method was done. If modified Alvardo score was more than 7 then definitive treatment, that is appendicectomy or diagnostic laparoscopy was done. All the specimens were sent for histopathological examination. In females, negative appendicectomy rate is more because of varied pathology in lower abdomen such as uretric colic, UTI, torsion of ovarian cyst, pelvic inflammatory disease, salpingitis, acute gastroenteritis, ruptured ectopic pregnancy etc.

Hence, to decrease negative appendicectomy rate in females we have used modified Alvardo score and diagnostic laparoscopy to confirm the diagnosis of acute appendicitis.

Conclusions -

1. In female patients of reproductive age group high index of suspicion should be taken in account to consider possibility of acute appendicitis.
2. Diagnostic laparoscopy is the confirmatory investigation to diagnose right lower quadrant pain and to diagnose other gynecological problems.

Introduction- Pain in right lower abdomen is the commonest symptom in this part of the world.

Appendix is a lymphoid tissue and suggested to have some immunological function. In humans, it is a vestigial organ but in animals it has some role in digestion of cellulose.

Appendicitis is not commonly seen in vegetarians because of more roughage in diet. So faecolith is not formed and incidence of appendicitis decreases. (20,21,22)

The present study is to diagnose appendicitis correctly so that the rate of negative appendicectomy comes down to as low as Nil.

Material & Methods - Two hundred female patients aged between 15 to 45 years, coming to general surgery OPD and in Emergency Department of F.H Medical College & Hospital, Tundla Firozabad w.e.f October 2014 to October 2016 were included in this study.

Alvardo in 1986 gave a scoring system which is as follows (1-5). This score is subsequently validated in adult surgical practice (11). This score alone does not give correct diagnosis. (18-19)

Symptoms-

	Alvardo score
Anorexia	- 01
Nausea/Vomiting	- 01
Migrating pain from central to right lower abdomen	- 01

Signs -

Tenderness in right lower abdomen	- 01
Rebound tenderness	- 02
Elevation of temperature of more than 37.3°c	- 01

Laboratory Investigation -

Leucocytosis	- 02
Shift to left (increased polymorphonuclear maturation)	- 01

In this score maximum points are 10 and minimum point is 0. There are many other score for assessing acute appendicitis, such as modified Alvardo score in which shift to left is not taken into account and maximum score is 9. As shift of polymorphonuclear maturation was not routinely done in our hospital set up so we have scored our

patients by modified Alvardo score.

A Proforma is filled in all cases. Exclusions criterion are as follows.

- (1) Female less than 15 years of age.
- (2) Female more than 45 years
- (3) Any evidence of urinary tract infection.
- (4) Any evidence of pregnancy.
- (5) Any history of previous caesarian section.
- (6) Any amount of collection in the peritoneal cavity.
- (7) Any h/o appendicitis in the family.
- (8) Any h/o recurrent pain in abdomen.
- (9) Any h/o bleeding per rectum.
- (10) Any h/o irregularity of menses.
- (11) Any mass in right lower abdomen.

All the patients attending outdoor underwent detailed clinical examination and pathological tests such as CBC, Urine examination, CRP.

On examination, if modified Alvardo score is 0 to 4 then these patients were treated conservatively.

If condition of these patients deteriorated in next 24 hours, only then further radiological investigations were done. If patient responded well on conservative treatment, then he was discharged.

Modified Alvardo Score	No. of Patients	Percentage (%)
0-4	60	30%
5-6	34	17%
7 or more than 7	106	53%

Out of two Hundred Patients. 106 Patient were having modified Alvardo score 7 or more than 7.

Out of these 106 patients, 50 patients (Group A) had undergone appendicectomy. All the specimens were sent for histopathological examination. 30 specimens were positive for appendicitis (muscularis propria of these appendix were infiltrated by neutrophil granulocyte).

Remaining 56 patients (Group B) had under gone diagnostic

laparoscopy. After diagnostic laparoscopy 35 patients were diagnosed to have acute appendicitis; these 35 patient underwent appendicectomy and specimen sent for histopathological examination. All the specimens were histopathologically positive. Here negative appendicectomy rate is nil. Diagnostic laparoscopy (16,17) is of paramount importance in diagnosing acute appendicitis.

Out of remaining 21 patients in group B, 10 patients had normal appendix & no other obvious problem, 6 patients had pelvic inflammatory disease, 4 patients had UTI, and one patient was found to have torsion of ovarian cyst.

In patients having modified Alvarado score 5 & 6 further evaluation was done and treated accordingly.

Group A- Total patient	-	50
Appendicectomy	-	50
Histopathologically positive	-	30
Negative appendectomy rate	-	40%
Group B- Total patient	-	56
Appendicectomy	-	35
Histologically positive	-	35
Negative appendectomy rate	-	Nil

Description of 56 patient of Group B was as follows.

Acute appendicitis	-	35 Patients
Normal appendix & no other problem	-	10 Patients
Pelvic inflammatory disease	-	6 Patients
UTI	-	4 Patients
Torsion of ovarian cyst	-	1 Patients

Table: 1

Age wise distribution of two hundred patients coming to OPD with complaint of pain in Right lower abdomen.

Age	No of patients	Percentage (%)
15-20	08	4%
21-25	42	21%
26-30	55	27.5%
31-35	45	22.5%
36-40	30	15%
41-45	20	10%

From above table it was concluded that acute appendicitis occurs mainly is young female.

Table: 2 Commonest Symptom was pain in right lower abdomen.

Symptom	No. of patient	Percentage (%)
Migrating pain	190	95%
Nausea/ vomiting	50	25%
Increased temperature	55	27.5%

Table: 3 Commonest signs presents were tenderness and rebound tenderness.

Sign	No. patient	Percentage (%)
Tenderness	110	55%
Rebound tenderness	100	50%
Temperature	95	47.5%

Total appendicectomy done 85 Patient

Histologically positive in both Group A & B (Total) - 65 Patient

In group A, negative appendicectomy rate was 40%, while in group B negative appendicectomy rate is nil. 30 to 40% negative appendicectomy rate is acceptable as described in literature. (9)

On pathological investigation, leucocytosis (TLC- more than 10000/cmm) was present in 75% cases.

On radiological investigation CT scan was more sensitive than MRI (15)

In every case of appendicitis per rectal or per vaginal examination should be done. In patient with pain Right lower abdomen if rectal tenderness present than chances of appendicitis is more.

In children the commonest cause of pain right lower abdomen apart from acute appendicitis is mesenteric lymphadenitis.

In female patients commonest causes of pain right lower abdomen, other than acute appendicitis are uretric colc, pelvic inflammatory disease, diverticulitis and gastroenteritis. (8)(10)

In majority of malpractice, litigation in case of acute appendicitis is because of acute gastroenteritis. Though a battery of investigations are available to diagnosis acute appendicitis, still some delay and wrong diagnosis leads to malpractice suits. (12,13,14,15)

Discussion -

(1) - Appendicitis is the commonest cause of acute abdomen. in young female patients.

(2) - Classical featur of presentation is migratory pain, nausea, vomiting and fever.

(3) - Few signs such as tenderness in right lower abdomen rebound tenderness and increased temperature present.

(4) - Few pathological investigation such as CBC, Urine examination, and CRP should be be done to diagnose acute appendicitis.

(5) - In radiological investigations ultrasonogram and CT scan to be done to diagnose acute appendicitis. MRI is of limited value in diagnosis of acute appendicitis.

(6) - False negative cases are present more in female because of other pelvic organ diseases. In present study by using diagnostic laparoscopy we have decreased negative appendectomy rate to as low as nil.

(7) - If patient is having acute appendicitis with pregnancy appendicectomy is to be done urgently.

(8) - Appendicitis is more common with non vegetarian diet than vegetarian diet.

(9) -In children less than two years, diagnosing appendicitis is very challenging & has more mortality and morbidity.

(10) -Elderly patients with appendicitis also have more morbidity & mortality.

Conclusion -

(1) -Appendicitis is one of the most common cause of morbidity and mortality in all age groups.

(2) -It can be diagnosed by clinical examination, pathological test and radiological investigation.

(3) -Different scores such as Alvarado, modified Alvarado, Mantrel score help in diagnosis of appendicitis.

(4) -In females diagnosis of acute appendicitis is very difficult. Confirmatory diagnosis can be done by diagnostic laparoscopy to rule out other pelvic organ pathology.

Thus we conclude that by using modified Alvarado score and diagnostic laparoscopy negative appendicectomy rate can be decreased to as low as nil in females of child bearing age.

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