

REFERENCES

1. Berlin, D. and F. H. Labey : Surg. Gyn. and Obs. , 1935, 49, 19.
2. Clerf, L. H. : J. A. M. A. , 1953, 151, 900.
3. Clerf, L. H. and W. Baltyell: Laryngoscope, April, 1953.
4. Lemere, F. : Ann. of Oto. Rhin. , and Laryn. , 1934, 43, 525.
5. Murtagh, J. A. and C. J. campbell : J. Cl. Endocrin. and Meta., 1952, 12, 1398.
6. Mustagh, J. A. and C. J. campbell : Laryngoscope, 1951, 61, 581.
7. Negus, V. E. : Proc. Roy. Soc. Med. , 1947, 40, 849.
8. Rusrad, W. H. and L. F. Morrison : Laryngoscope, 1952, 62, 237.
9. Semon, Felix : Arch. Laryng. , 1881, 2, 197.
10. Todd, I. : Unpublished Master's Degree Thesis, Loyola University, Chicago, 1938.
11. Vogel, P. H. : Am. J. of Anatomy, 1952, 90, 427.

Appendicitis

REPORT OF THREE HUNDRED AND TWENTY SEVEN CASES*

by

M. H. TOURAN, M. D.¹

During the Iranian New Year Holidays (March, 1956) I studied all the surgical interventions performed by myself or under my supervision. I was touched to note that acute appendicitis was on top of all other surgical procedures. This gave me the impression that acute appendicitis still continues and will continue to be the most frequent indication for surgical intervention and sometimes the most vital problems of general surgery. Going through the literature, one finds a large number of statistics covering many thousands of cases of appendicitis. Therefore submitting a report for 327 cases is rather simple. Nevertheless I do believe it is worthy to report the experience which I gained from this survey.

The material of this report belongs to two hospitals of Tehran : The Railway's Hospital and city Hospital. About 80% of the cases are taken from the Railway's Hospital, that its surgical Service handles all the surgical problems of 25,000 workers and officemen with their family, adding up to a population of almost 80,000. Over a period of two years, we had a total of 1918 surgical procedures. Of this number, 758 were on the gastro-intestinal tract; from which 327 cases were intervention for appendicitis.

In this survey, we encountered every kind of pathological form and anatomical variety.

(*) From Surgical Service of Railway's Hospital and City Hospital, Tehran.

(1) Chief of Surgical Service of Railway's Hospital, Attending Surgeon, City Hospital, Tehran.

The youngest patient was two years of age and the oldest 68. 70% of the cases were between 18 and 35. On the basis of this last fact we assume appendicitis to be a disease of activity age.

We had 218 cases of the acute non-ruptured form divided into three groups:

- 1- 66 cases which were operated on within the first 24 hours after the onset of their attack.
- 2- 112 cases which were operated on within the second 24 hours after their attack.
- 3- 40 cases which were operated on after 48 hours.

There were 23 perforated cases of ruptured suppurative or gangrenous appendix with peritonitis. We had five patients with localized peritonitis, so called «appendiceal plastron». We met 6 cases with appendiceal abscess and finally 75 patients with chronic appendicitis.

ETHIOLOGY

Besides the two main factors of intraluminal pressure of appendix by obstruction and infection, we found fatigue and intake of a heavy meal to be important factors, at least very good predisposing causes.

A good number of acute cases were found among workers of night duty. They came in with acute pain in the abdomen early in the morning when they were going off duty. Their history disclosed pain, vomiting and severe fatigue during the last few previous days. Also there was the history of taking a heavy meal within 24 hours prior to the acute attack for many patients.

In these cases, I believe, we had better consider fatigue as a cause, but not as a symptom.

SYMPTOMS, SIGNS AND DIAGNOSIS

The chain of symptoms: pain, vomiting, tenderness, hyperesthesia, rigidity, constipation, diarrhea, rapid pulse, fever and leukocytosis were always in our mind.

Although every case presented a different picture of symptoms; just as they say in French *il n'y a pas de maladie, il y a de malade.*

In an acute attack we found three symptoms almost in every case:

First: abdominal pain with its classical description;

Second: vomiting;

Third: irregularity of the bowel movement within 12 hours prior to the attack.

During this period, usually patient with acute appendicitis feels that he needs to go to toilet 2-5 times. He goes there several times with or without some loosey movement. This repeated feeling of going to toilet during this period seems to be a valuable sign.

Rectal examination helped us a great deal in acute cases, especially among children.

If you do a rectal on a patient with acute appendicitis with a bare finger, you will find some sort of hot and burning sensation on the rectal mucosa up above the anus. Tenderness is also present on the right side, but that burning sensation is a very important sign. One can appreciate the accuracy of this sign if he is accustomed with the normal sensation of rectal mucosa.

We usually do not even use vaseline for lubrication, but a liquid oil such as parafin.

Some symptoms and signs were of high diagnostical values. For instance, in perforated appendix, we had rapid pulse, continuous vomiting, abdominal distension and generalized pain. In non-ruptured suppurative appendicitis we get hyperesthesia and rebound tenderness. With a gangrenous appendicitis, the patient has toxemia and he is in shock.

Blood counts was done in 261 cases. We had a W. B. C. between 6.500 to 26.000 and a poly count between 60 and 83.

Blood count finding was mostly confirmatory sign and was more valuable for prognosis than for diagnosis.

CLINICAL FORMS

1- Acute appendicitis: the report contains 218 cases with acute condition.

2 Perforation: we had 33 cases with perforation or gangrene appendix.

It is of utmost importance to mention that every one of this group has taken some sort of purgative prior or during their attack. In one case, when we opened the abdomen, pus and fecaloid fluid was present in the peritoneal cavity. Appendix was cut off near its base. Soily material was coming out from its proximal stump. It was legated and inverted. Fluid was aspirated and amputated appendix was found in the pelvis within the intestinal loops. This patient had a nice recovery.

Another patient was sent from Arak with acute abdomen of five days duration. His condition was so critical that we had an argument as to whether we should operate on him. Finally with little hope we opened his distended abdomen full of pus, 8 hours after his admission. We just put a drain in and closed it. Patient expired within 10 hours.

The third interesting case of perforation was one who admitted to the medical ward for a severe typhoid. I was asked to see the patient on third day, because the internist thought he had developed a typhic perforation. Abdomen was the one of a perforated. Widal test was positive for 1/50. He was transferred to surgical ward and intervention was performed at once. It was strange enough to see that he has a suppurative sloughed appendix. We lost this patient in two days.

3 - Appendicitis with localized peritonitis and abscess: we had five cases of appendicitis with localized peritonitis, an inflammatory mass in the R.I.F.

This was the only group of patients who were treated conservatively and operated later at proper time not before two months from the onset of their disease.

We noted six cases of appendiceal abscess. Diagnosis was made either for a mass on the R.I.F., with fluctuation or by presence of a localized peritonitis with mass which did not respond to medical treatments after one week. These six patients were drained and reoperated later. History of this patients with abscess and plastron showed that

they were either mistreated or misdiagnosed. So I would like to call them *neglected appendicitis*.

4- Chronic appendicitis: under this term we had 75 cases out of 327. They were divided into two groups:

The first or the majority were patients with a definite history of acute attack in their past. Intermittant lower abdominal pains and constipation were present. They had the so-called *recurrent or relapsing appendicitis*.

The second group had no history of previous attack, but we found the presence of severe typhoid or dysentery in their past.

We hardly believe (and may be we are unaware) of any other kind of chronic appendicitis.

Usually typhilitis, irritable colon and other intra-abdominal or urinary affections are responsible for it.

ANATOMICAL VARIETY

| | |
|---------------------------------|-----|
| Free intra-abdominal and pelvic | 253 |
| Retrocecal | 38 |
| Retroperitoneal | 30 |
| Subhepatic | 4 |

DIAGNOSTICAL ERRORS

Besides these 327 cases there were 8 patients with a preoperative diagnosis of acute appendicitis, which turned out to be something else.

In this matter we are going to confess our surgical sins as follows:

We opened up two patients with regional ileitis;

We operated on two children for acute appendicitis and found mesenteric adenitis;

There were two patients with all signs of acute appendicitis, but in operation there was found obstruction of ileum due to ascaris lumbricoides; worms were removed by enterotomy with good result;

We operated a case with acute gall bladder disease;

And finally we opened the abdomen of a young woman with acute pelvic inflammatory disease.

On the other hand there were two cases with preoperative diagnosis of intestinal obstruction, but operation revealed ruptured appendicitis.

I had a case with typical signs and symptoms of perforated ulcer. Patient was used to take sodium bicarbonate over a long period of time. We took the patient to operating room for intervention. We opened the abdomen and found a perforation on the appendix.

TREATMENT

Today awareness of people, improved diagnostical methods, proper technical procedures and good postoperative care have reduced the mortality rate of appendicitis down to 8-15 per 100,000 population, or 1-2% of acute appendicitis.

In this survey we performed intervention soon as we felt certain about our diagnosis.

In acute cases our policy was what Murphy said: « The earlier the operation, the lower the mortality ».

The only contraindication for surgery was the presence of a circumscribing peritonitis, (plastron). Only in this type of clinical form we advised conservative treatment, so-called « delayed medical treatment of Ochsner-Deaver ».

The time when we would operate was a problem in the beginning, but today we can operate upon any patient with acute appendicitis at any time, providing that he has no plastron and his general condition is good for surgery.

I do not see any other contra-indication for intervention or any other better procedure than surgery.

Anesthesia was spinal administered by myself in 130 cases and general in 97.

Incision was right lower pararectus in 259 and right Mc Burney in 68. Right lower pararectus incision is very good for removal of any kind of appendix. Right Mc Burney seems to be good in some instances, but it is excellent for cecostomy.

Inversion was done in 129 cases.

Technical procedure was the simplest and the easiest method.

Drain :

We used five intraperitoneal drains in perforated cases. Two of these developed intestinal fistula which needed reoperation. Two others expired (obviously not for the drain).

In suppurative cases without perforation we omitted intraperitoneal drain if pus and fluid were found within peritoneal cavity. In those perforated cases where we could invert the appendiceal stump properly, intraperitoneal drain was not applied. In some of these cases we solely put a subcutaneous drain for 24-48 hours.

Postoperative complications :

We had two surgical deaths (0.61%).

22 patients developed wound infection. There were four urinary infections, perhaps due to improper catheterization. Two patients over 55 years of age had wound evisceration after the 10th postoperative day. They were reoperated and recovered. We had two fistula of cecum postoperatively. Secondary exploration and repair of fistular tract with good result was performed upon both of them.

I would like to add a few words about acute appendicitis in pregnant women. When a pregnant woman gets acute appendicitis we ignore her pregnancy.

We had three cases, two less than three months and the third with a perforated suppurative appendicitis over seven months. They were operated and got well without abortion.

It is obvious that surgical intervention threatens the pregnancy much less than a possible perforation or gangrene of appendix.

After four months incision must be given higher than usual.

CONCLUSION

Today as they say *the physician treats appendicitis, but the surgeon cures it.*

It is our practice to handle every case as an individual. The followings are some of our rules and considerations regarding patients with acute appendicitis:

1- To make proper examination and laboratory work to reach a *right diagnosis.*

- 2- To perform *intervention* as soon as we are certain of our diagnosis.
 3- *Right lower pararectus* incision almost in all cases. No two clips and fancy incision.
 4- *Inversion* of the stump if the cecum and the base of appendix are normal and not edematous. Otherwise we do not invert and if we do not invert we ligate the appendiceal stump with chronic No.2.
 5- We avoid frequent intraperitoneal drain even if there is free pus, but *aspirate* and *clean* the peritoneal cavity and close the wound with a *subcutaneous drain* for 48 hours.

We prefer to use an intraperitoneal drain when the parietal peritoneum is involved, or when circumstances make the removal of a diseased appendix inadvisable.

- 6- In any acute surgical abdomen of unknown preoperative diagnosis, on opening the peritoneum, we first investigate the *appendix*.

Coming to the end, I dare to say that to-day *One should not die from appendicitis*.

RÉSUMÉ

Nous avons rapporté en détail une série de 327 cas d'appendicite. Le tableau ci-dessous montre le nombre des formes cliniques de cette série.

| | |
|---|-----|
| Appendicites aiguës et suraiguës | 218 |
| Perforations et gangrènes appendiculaires | 23 |
| Plastrons appendiculaires | 6 |
| Appendicites chroniques | 75 |

Et pour l'étiologie, nous avons observé que deux facteurs sont de vraies causes prédisposantes : une fatigue sévère, prendre un repas lourd pendant 24 heures avant l'attaque.

En étudiant les signes et les symptômes d'appendicite aiguë, nous avons trouvé des troubles du transit intestinal pendant 12 heures avant la crise, signe très importante et constante.

Aussi, avons-nous noté chez les enfants qu'un toucher rectal au doigt-nu montre une chaleur formidable sur la muqueuse du rectum.

Nous avons discuté les formes cliniques de cette série. Et nous croyons qu'il n'y a guère une appendicite chronique d'emblé. En pratique, il nous semble que l'on exagère beaucoup de faire un diagnostic d'appendicite chronique.

Pour le traitement, nos idées de thérapeutiques chirurgicales et médicales ont été commentées. Nous sommes aussi sûrs que pour l'appendicite aiguë la loi, *le plus tôt l'intervention, le meilleur le résultat, est la règle*.

Le plastron ou la péritonite localisée appendiculaire est la seule contrindication pour la chirurgie immédiate. Dans ces cas nous nous appliquons des traitements conservatifs pour quelques semaines. Et alors au bout de deux mois, nous procédons à la chirurgie.

Tous les malades de cette série ont été opérés. Il y a seulement deux cas de mort chirurgicale : une mortalité de 0.61%.

REFERENCES

1. Baily, H. : Emergency Surgery, Bristol, John Wright and Sons, 1946.
2. Christopher, F. : Textbook of Surgery, Philadelphia, W.B. Saunders Company, 1953.
3. Fine, J. : Care of Surgical Patients, Philadelphia, J.B. Lippincott Company, 1951.
4. Kelley, F.R. and R.M. Watkins : Appendicitis in adults, J.A.M.A., 1939, *112*, 1786.
5. Mondor H. : Diagnostics Urgents de l'Abdomen, Paris, Masson et Cie Editeurs, 1940.
6. Reid, M.R. And W.P. Montanus : J.A.M.A., 1940, *114*, 1307-1311.
7. Thoreck, M. : Modern Surgical Technic, Philadelphia, J.B. Lippincott Company, 1947.
8. Toland, J. : J.I.C.S., 1952, *14*, 433-436.
9. Mann, L. : J.I.C.S., 1954, *22*, 456-457.
10. Quenu, J. and J. Perrotin : Traité de Technique Chirurgicale, Paris, Masson et Cie Editeurs, 1955.