Evaluation of Clinical Parameters in Patients with Acute Appendicitis in Comparison with Other Causes of Acute Abdomen

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ORIGINAL PAPER
SUMMARY
One of the most common causes of acute pain in the lower abdomen is appendicitis and covers almost two thirds of the total number of hospitalized patients. The survey included all patients who have pain in lower abdomen and came to the review at the Polyclinic Doboj-South and General Hospital Tesanj during 24 working hours. The sample consisted of 101 patients hospitalized at the General Hospital Tesanj with the clinical picture dominated by acute pain in the lower abdomen. Taken into account are all relevant clinical parameters necessary for establishing rapid etiological diagnosis of acute lower abdominal pain. So we can say that appendicitis has the following characteristics: pain is gradual, increasing in duration from 8 to 16 h, localized in the lower right quadrant, or begins in the epigastrium and is descending into the lower right quadrant and spreading in a large percentage of proximal dorsal and then the inner part of the thigh. Accompanied by nausea, vomiting, with a statistically significant increase in leukocyte levels over 10000 and pathological findings in urine. The difference between rectal and axillary temperature was statistically significant. Palpatory positive painful in Mc Burney spot. Patients are usually younger than 30 years.

Key words: Acute appendicitis, acute abdomen, clinical parameters.

1. INTRODUCTION
Acute appendicitis is one of the most common causes of acute lower abdominal pain. However, there are other diseases that can cause pain and mimic acute appendicitis. Some of these conditions are treated surgically, however, for some better is a conservative treatment. Pathology of inflamed appendix is based on observations, where it is considered that the primary site begins by limited necrosis of the mucous epithelium (appendicitis catarrhalis), and the process of expanding wedge-shaped throughout the bowel wall (phlegmonosa appendicitis), and then to infection and consequential cicatriciation which creates gangrene (appendicitis gangraenosa) with consequent perforation (appendicitis gangraenosa perforativa) and the development of diffuse peritonitis. In addition to this perilous development, inflammation of the appendix can develop in better direction in terms of a good outcome in this way that nature engages the available defense mechanisms, whose job is to block and isolate the affected inflamed appendix (1,2,3).

The most important parameters by which we can evaluate the patient with lower abdominal pain are as follows (2):
- Migration of pain in the right iliac region.
- Anorexia.
- Nausea and vomiting.
- Pain when the right iliac region is pressed.
- Pain when you remove the pressure from the right iliac region.
- Fever over 37.3° C.
- Leukocytosis over 10,000 per microliter of serum.
- Neutrophilia.
- Ketones in urine

In Anglo-Saxon literature, we found the following mnemonics, which means the above parameters; MAN-TRELS—Migration to the right iliac fossa, Anorexia, Nausea/Vomiting, Tenderness in the right iliac fossa, Rebound pain, Elevated temperature, Leukocytosis, and Shift of leukocytes to the left.

Of all these factors the sensitivity of the right iliac region and leukocytosis carry 2 points, while others carry a single point. Based on the addition of these parameters is obtained the so-called Alvarado score.

Specific signs may identify specific diseases that lead to the occurrence of abdominal pain (1). The most famous signs are Kerh sign, Mcburney sign, a sign of iliopsoas, obturator sign, Grey-Turne sign, Chandelier sign, Rovsing sign, Carnett sign, rectal pain, Blumberg sign (1).
2. GOALS

We hypothesized that, based on clinical parameters we can assume what is likely to be a case of acute appendicitis. In addition, it is necessary to determine that it is a case of a disease which pain resembles that of acute appendicitis may be present and how this is related to blood tests and character of pain.

3. MATERIAL AND METHODS

The survey included all patients who have pain in lower abdomen and came to the review at the Polyclinic Doboj-South and General Hospital Tesanj during 24 working hours. The sample consisted of 101 patients hospitalized at the General Hospital Tesanj with the clinical picture dominated by acute pain in the lower abdomen. The study was a clinical, retrospective–prospective and carried out in the period from June 2008 to June 2009. The study included patients, aged 0-99 years of both sexes.

Criteria for inclusion of subjects in research are the dominant symptom, pain in lower abdomen, which were hospitalized. Criteria for exclusion from the study were abdominal pain caused by neurogenic and psychological causes of pain, trauma, chronic recurrent constipation, chronic metabolic disorders and drug abuse. The study begins with the first patient contact and examination of his general condition that performs a doctor on admission. History data at the first contact are taken (own variables) on a specially created data carrier (questionnaire), which will be the subject of a later stage of processing and analysis in our study. In a situation where the patient is not communicative we used history data from accompanying persons.

Physical examination of patients is the next step in the research, conducted by a doctor on admission, with particular attention paid to the lower abdomen area, and the focus of the physical examination will focus on the symptom of pain, whose localization, expansion and other characteristics determined by inspection, auscultation, and particularly important palpation. The obtained results are accurately entered into the questionnaire. The next step is the rational choice of specific hematological and biochemical laboratory tests, which dictate the results of anamnesis and physical findings, and therapeutic procedures established in accordance with severity. Selection (assessment) of appropriate diagnostic medical technologies in order to make definitive clinical diagnoses. Application of ultrasound technology and standard radiography.

4. RESULTS

The total number of patients enrolled in the study was 101. From these patients, 57 are male and 44 female. Of all causes of abdominal pain in the lower abdomen appendicitis was the most common with a total of 62 patients, of which slightly more among male patients (36) compared to female patients (26) or (37% male and 43% female patients). Appendicitis is, therefore, more common in male patients. This disease can be expected in children and younger patients. In children less than 15 years is found in 15 male and 6 female patients. In younger patients of 16-30 years we have the same ratio (14 male and 14 female patients). Due to the fact that appendicitis usually occurs in a group of 16-30 years, this group is most often hospitalized for acute pain, with the fact that in this age group also found is the ovarian cysts in women.

One of the most important parameter is the difference between rectal and axillary temperature. In our study, we showed that the difference is statistically significant in comparison to other causes of pain in the lower abdomen \( (p \leq 0.001) \). The increase of leukocytes in relation to reference values of other patients with abdominal pain was statistically significant. Mean of leukocytes in the serum was 12.29. The difference in the number of leukocytes was statistically significant compared to other patients.

If we analyze the value of pain we see that mode (the most common frequency) is 6 points on a scale of 10 with a total of 18 out of 62 patients with appendicitis. The pain is less pronounced than in case of ruptured abdominal aneurysm.

In older patients the appendicitis occurs rarely. However, the clinical picture can be attenuated, so it occurs that the disease is not immediately recognized. Based on history data the pain parameters are: location, intensity, spread and characteristics of pain, temperature (axillary and rectal), nausea and vomiting, and leukocytes, it was found that these predictive factors for acute appendicitis have diagnostic value, because for these parameters proved

<table>
<thead>
<tr>
<th>Polna struktura</th>
<th>Appendicitis</th>
<th>Carcinoma</th>
<th>Cystis ovarii</th>
<th>Cecum reami</th>
<th>Illbis</th>
<th>Anemia</th>
<th>Cystis oment</th>
<th>Diverticulit</th>
<th>M Crohn</th>
<th>Abs. peritonit</th>
<th>Ubopain</th>
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<tbody>
<tr>
<td>Male</td>
<td>36</td>
<td>57,14</td>
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<td>3</td>
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<td>1</td>
<td>100</td>
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<tr>
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<td>42,86</td>
<td>9</td>
<td>47,37</td>
<td>7</td>
<td>100</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Total</td>
<td>62</td>
<td>100</td>
<td>19</td>
<td>100</td>
<td>7</td>
<td>100</td>
<td>4</td>
<td>100</td>
<td>3</td>
<td>100</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 2. Gender structure and number of patients, depending on the etiology of abdominal pain
The intensity of pain in patients with appendicitis within the total sample

Table 1. The intensity of pain in patients with appendicitis within the total sample

<table>
<thead>
<tr>
<th>Pain Intensity</th>
<th>Number of Patients</th>
</tr>
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<tbody>
<tr>
<td>0</td>
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</tr>
<tr>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
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<td>1</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 2. Time elapsed from the onset of pain to visit the doctor

Figure 3. The difference in rectal and axillary temperature in patients with appendicitis

The difference in rectal and axillary temperature in patients with appendicitis

Figure 4. The difference in rectal and axillary temperature in patients with appendicitis

Static significance p < 0.05. Leukocytosis is an important predictive factor for acute appendicitis. In our sample we had a Meckel diverticulum, which can often mimic acute appendicitis. In a sample of patients, we found that most patients reported the first day or at latest during the second day. On the second day was not a single patient contacted for review. See Figure 2. On the first day of pain onset usually come to review one half of the patients while the majority of them came on the second day or later. Two-thirds of patients with appendicitis came the first day for the examination. The pain of appendicitis is a medium intense, the cyst was slightly more intense, and the aneurysms were followed by the strongest feeling of pain. Renal colic is characterized by pain, which is slightly stronger than in appendicitis. Pain in the ileus is the type of colic, appendicitis is characterized by sharp and rarely dull the pain until the pain of the type of colic does not occur in appendicitis and such pain usually indicates the presence of ileus or low urinary tract obstruction.

5. DISCUSSION

Patients come to the hospital because of acute abdominal pain in lower abdomen usually during the first day after the pain occurs. The highest probability is that the patient comes due to appendicitis, which is about 60% in most series.

Abdominal pain is one of the most common causes of visits to primary care (4). It is the most common cause of gastroenterologist and surgeon consultations. While the specific diagnosis can be obtained in many patients we cannot identify the etiology of pain in about 35% - 51% of patients with abdominal pain. Appendicitis is the most common cause of lower abdominal pain, and affects more often men. Pain is the leading symptom with the following characteristics: gradually increasing to the level of 8 on the pain scale, expanding into the inguinal region, but also a large percentage is spread in the dorsal region of the inner side of the lower leg. The pain is accompanied by vomiting, fever, leukocytosis (over 10000) and pathological findings in urine, and all patients registered pain sensitivity and specific physical signs of appendicitis. Diagnosis of patients is crucial for establishing the correct diagnosis. Even though we do not know the real cause of pain is often necessary to do surgery. The purpose of the surgery is to establish the etiological diagnosis and treatment of causes.

So we can say that appendicitis has the following characteristics: pain is gradual, increasing in duration from 8 to 16 hours, it is localized in the lower right quadrant, or begins in the epigastrium and then spread into the lower right quadrant, is spreading in a large percentage of proximal dorsal and then the inner part of the thigh. Accompanied by nausea, vomiting, with a statistically significant increase in leukocyte levels over 10000 and pathological findings in urine. The difference between rectal and axillary temperature was statistically significant. Palpatory positive painful in McBurney spot. Patients are usually younger than 30 years. The difference in the character of pain in the overall sample of appendicitis is significant with p < 0.001.

REFERENCES


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