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Research Article

Management of inflammatory appendiceal mass: a retrospective study

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ABSTRACT:
The appendiceal mass is a common complication in the natural evolution of acute appendicitis, often manifested by a mass in the right quadrant, ranging from the appendiceal phlegmon to the collected abscess. Our study consist on determining the epidemiological, clinical, diagnostic and therapeutic aspects in the care of the appendiceal plastron, as well as the role of surgery in this special care. This is a retrospective study including 30 cases of appendiceal mass, excluding appendicular abscesses, collected to the general surgery department of the military hospital Avicenne of Marrakesh, over a period of 5 years, from January 2011 to December 2015.

KEYWORDS: Appendicitis, mass, conservative treatment, interval appendicectomy.

INTRODUCTION

Acute appendicitis is the most common abdominal surgical emergency [1]. The appendiceal mass is one of these complications. It occurs when inflammation of the appendix is contained by the mechanisms of defense, trying to prevent the spread of the infection to the rest of the abdominal cavity [2,3]. Omentum, small intestine and cecum envelop the inflamed appendix and form an inflammatory mass. This inflammatory appendiceal mass may be a pathological spectrum ranging from a simple inflammatory phlegmon to a circumscribed abscess [2,5]. In most cases, it is clinically difficult to distinguish with certainty between the two conditions, but in different reports, nearly half or more than half of the patients with a mass proved to have a phlegmon in the surgery [2,5,7]. The improvement of radiological imaging techniques have allowed a more precise definition of the appendiceal mass over the decades [6].

The support of the appendiceal mass encounter two problems, controversial: the place of the surgery and the period of this surgery after medical treatment [3,8,9]. Through this study, we report the epidemiological, clinical, paraclinical and treatment aspects of this disease entity, to evaluate our expertise and to compare it with the data in the literature.

MATERIALS AND METHODS

Our work is a retrospective study, on a series of 30 cases of appendiceal mass in adults, gathered over a period of 5 years from January 2011 to December 2015, at the service of General Surgery of the military hospital Avicenne - Marrakech.

We tried to collect clinical and paraclinical datas of our patients, as well as the therapeutic modalities, consisting of an initial conservative treatment followed by interval surgery.

Are excluded from our study, appendicular abscess and pseudo-tumor or tumor masses, suspected or diagnosed by imaging.

RESULTS

Cases of appendicular mass represented 6.35% of patients admitted for appendicular ailments during the five years of our study. The male was predominant (20 men and 10 women) with a sex ratio of 2. The average age of patients was 29 years with extremes ranging from 18 to 60 years. The average time of consultation was 6.3 days with extremes ranging from 2 to 15 days after symptoms beginning. The pains of the right lower quadrant (93.3% of cases), vomiting (70%) and transit disorders (50%) dominated functional signs that led to this consultation. A fever above 38.5°C were found in 56.7% of cases. Clinical examination has objectified a localized defense in 70% of patients, an thickening in 56.7% of patients, a mass in the right quadrant in 73.3% of the patients and pain in the rectal exam in 16.7% of patients.

A complete blood count and a dosage of C-reactive protein (CRP) was done to all our patients. The leukocytes proved to be normal in 16.7% of cases and was significantly high (between 11,000 and 36,000 GB/mm3) in 83.3% of cases. The CRP was below 5 mg/l in 6.7% of cases, and greater than 5 mg/l in 93.3% cases, of which 70% was higher than 20 mg/l. Abdominal ultrasound was done in all our patients and helped to guide the diagnosis in most cases (Figure 2).

Figure 2

It showed an agglutination of the intestinal handles around the appendix in all patients, with a parietal appendiceal reshuffle and an infiltration of local fat in 50% of cases, a minimal effusion and infiltration of the local fat from 43.3% of cases and a fluid collection containing a calcification in 6,7% of cases. Abdominal CT is a better diagnostic tool and has been requested in three patients, which the ultrasound looked doubtful (Figure 3).

Figure 3

All of our patients have benefited from immediate antibiotic treatment, combining amoxicillin (1g/8h), metronidazole (500mg/8h) and gentamycin (5 mg/kg/day for 3 days) parenterally for 3 days then relay orally for a total of 21 days. Paracetamol (1g/6h) and bladder of ice were also prescribed. The average initial hospital stay was an average of 3.2 days.

The evolution was favorable in 27 patients (90%) and has been complicated by a suppuration of the mass in two patients (6.6%) after 48 hours and one case of widespread peritonitis (3.3%) after 3 days of medical treatment. Urgent surgical treatment was therefore indicated for these three patients (10%). An interval appendectomy has been programmed for 23 patients (76.6%) after an average of 13.75 weeks, with extremes ranging from 12 to 18 weeks. Four patients were lost to follow-up. The incision first used was the Mac Burney (38.5%), followed by Jalaguier (34.6%) and laparoscopy (26.9%).

Figure 4

Surgical exploration (Figure 4) found a residual agglutination of intestine loops and omentum, around a sclerotic appendix in usual latero-caecal position in 22 cases (84.6%) and pelvic position in four cases (15.4%). The histopathological study performed for all our patients was for an inflammation of the appendix.

No deaths were reported in our study. The postoperative average hospital stay was around 3.6 days. The postoperative follow-up were simple in 19 patients (82.6%) and complicated in four patients (17.4%). Two of these patients had a wall infection, controlled by regular local care. A patient, operated through laparoscopy for suppuration of the mass, presented a digestive fistula by dropping of the appendiceal stump and reoperated in D2 by laparoscopy. The gesture was a stapling of the stump and a peritoneal toilet with drainage. His postoperative were simple. A 60 years old patient had a pulmonary embolism and has been managed in time.

DISCUSSION

The appendiceal mass represents 2 to 6% of appendicular disease, according to Jaffe & al. [4]; which is consistent with the 6.35% in our study.

The sex ratio of 2 in our study is comparable to studies conducted by Bahram [2], Okafor & al [11] and Shinholimath & al. [13]. The average age in our study was 29 and it was similar to that of the 24 ± 8.8 years of Bahram [2], 25.1±8.4 years by Malik & al [5] and 27 by Okafor & al [11].

Most of our patients presented themselves in consultation a week or more after the onset of their disease; similar results were reported by Skoubo-Kristensen & al. [10] and Okafor & al [11]. The average time between symptom and consultation was 7.8 ± 2.7 days in a study by Erdogan & al [12]. Our

results are compatible with most of the studies suggesting that usually patients who have symptoms of appendiceal mass for a longer time, usually at least 5 to 7 days [4].

Symptoms shown in the first consultation were similar to other studies [3,4].

Ultrasonography has been advocated as the diagnostic modality of choice, revealing the diagnosis in 70% of cases, however, contrast-enhanced computerized tomography (CT) scanning is far superior [1].

Management of inflammatory appendiceal mass remains controversial.

There are three methods for the treatment of appendicular mass: conservative management followed by interval surgery, a totally conservative management without interval surgery and emergency surgery [3,8,16]. Each method has some advantages and disadvantages.

The most widespread method of treatment is considered the nonoperative method by Ochsner (1901) [7]. This method implicates starting treatment with broad-spectrum antibiotics and infusion therapy. The aim of this approach was to achieve complete resolution of the inflammatory mass and the disappearance of symptoms in the patient before any surgical intervention (Figure 1) [29].

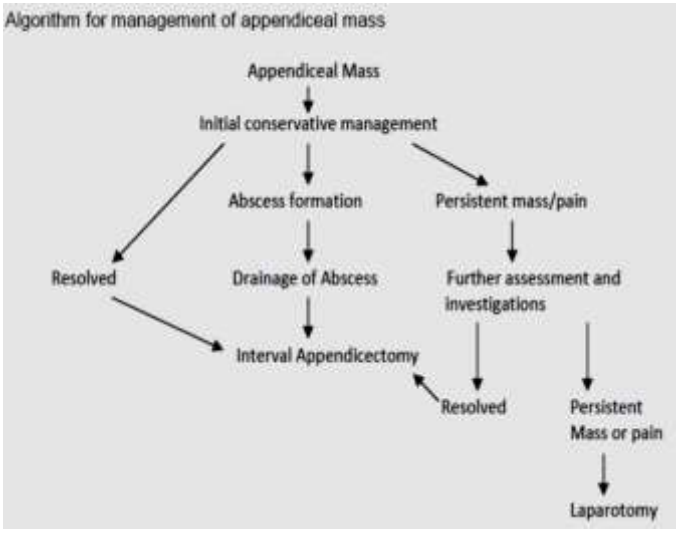

Figure 1

In case of improvement in the patient's condition, interval surgery is indicated after 8 to 12 weeks [3,15,18,19]. In case of existence or formation of appendiceal abscess, US or computed tomography-guided percutaneous drainage is indicated [8,14,16,20,21]. Failure of conservative treatment may be encountered in 10-20% of the patients [22]. Sustained fever, tachycardia, peritoneal irritation signs, and increased leukocyte count under conservative therapy can indicate the surgery. This was the case in three of our patients who were operated in emergency. It is also argued that some ileocecal pathologies other than appendicitis, like cecal malignancy, ileocecal tuberculosis and Crohn disease may be undiagnosed in patients treated with conservative management. Recurrent appendicitis and increased hospital costs are other disadvantages of a conservative approach.

Currently, the need for interval surgery after conservative treatment is debatable. The reasons for this controversy are the data indicating the low rate of recurrence of acute appendicitis (about 10%) by totally conservative management [16,22,23,24,25].

Emergency surgery has a certain place in the treatment of appendiceal mass. High frequency of postoperative complications is the negative side of this method [20,23]. These complications are caused by edema and the vulnerability of the adjacent small and large intestine, and difficult approach to the appendix due to deformation of anatomic structures and location. Conducting colonic resections (iliocecectomy, right hemicolectomy) is sometimes necessary instead of appendectomy due to the acute inflammation and adhesion [3, 9,16,18,20,23]. The prevalence of this method compared to conservative is due to no need of longitudinal follow-up and repeated hospitalization because of elective operation. This method avoids misdiagnosed cases and promptly deals with any unexpected ileocecal pathology that masquerades as an appendiceal mass [2,19,22,26,27].

Attention was given to the fact that most of the research regarding appendiceal mass treatment methods is retrospective. According to the scientists view, additional research is needed for fully understanding this subject [22,28].

Eight of our patients had laparoscopic interval surgery. The successful adoption of these procedure after successful conservative treatment is reported without perioperative morbidity [31,32] and the percentage of interval appendicectomies which are performed laparoscopically has increased in recent years from 30% to 85% [32]. The operating time and complication rates did not differ from those of open appendicectomy, but the hospital stay was much shorter in favor of the interval laparoscopic method [30,32].

CONCLUSION

In our structure, we choose to manage patients with appendix mass by conservative treatment followed by elective appendectomy. Misdiagnosis of appendiceal tumor or colonic tumor can be disastrous in patients with appendiceal mass. The surgeon must consider clinical symptoms and investigation-based results for choosing appropriate treatment methods in each particular case. Prospective randomized controlled trials are required for comparing the results of all 3 treatment methods of appendiceal mass.

Conflict of interests

The authors state no conflict of interest.

Contributions of the Authors

All authors have contributed to the editing of this manuscript and read and approved the final version.

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