

# Abdominal actinomycosis mimicking colonic tumor with the invasion of the small bowel and of the anterior abdominal wall

Ciprian Duta, Fulger Lazar, Cristi Tarta

Ciprian Duta, Surgery Clinic 2, University of Medicine and Pharmacy "Victor Babes" Timisoara, Romania

Fulger Lazar, Surgery Clinic 2, University of Medicine and Pharmacy "Victor Babes" Timisoara, Romania

Cristi Tarta, Surgery Clinic 2, University of Medicine and Pharmacy "Victor Babes" Timisoara, Romania

Address: SCJU Timisoara, I Bulbucastr, no 10, 300736, Timis County, Romania Phone: +40 726 437643

*Abstract Actinomycosis is a chronic; pseudotumoral with suppurated areas disease caused by an anaerobic gram-positive organism and has been surnamed "the great mime" [1]. An 82 years old Caucasian female presented in our department with signs of a transverse colon tumor that appeared to infiltrate the left rectus muscle posterior sheet. CT scan, Barium enema, colonoscopy could not settle the diagnosis and laparotomy was performed. The tumor was formed by transverse colon and his mesocolon, left abdominal rectus muscle above the umbilicus on a distance of 5 cm, great omentum and a jejunal loop. En bloc resection was done. The median incision was prolonged to the left at the level of umbilical scar, about 2 cm below the inferior limit of the tumor, same procedure was performed related to the cranial limit of the tumor. The transverse colon was resected with consecutive end-to-end colo-colic anastomosis. The jejunal loop was resected with jejuno-jejunal end-to-end anastomosis. At the end of the procedure the left rectus muscle sheets were sutured with separate sutures. Actinomycosis israelii was the pathogen found at pathology report. Despite refusal of antibiotic therapy the patient didn't had any recurrences after a follow-up of four years. Surgery has the main role in diagnosing and treating abdominal actinomycosis.*

**Index terms** – Abdominal actinomycosis, mimicking colon tumor.

## I. INTRODUCTION

Actinomycosis is a chronic, pseudotumoral with suppurated areas disease caused by an anaerobic gram-positive organism - Actinomycosis israelii. This organism is a commensal of the human mouth and digestive tract and is rarely pathogenic. Its usually presentation form is cervicofacial, from 50 to 65% of the cases, while the abdominal form represents only 20% of the cases [2]. When the actinomycosis is located in the abdominal cavity the tumor is mimicking others disease, and has been surnamed "the great mime" [1]. We present a case of abdominal actinomycosis of the transverse colon that appeared as a colonic tumor invading the anterior abdominal wall and the small bowel, the first case reported in the literature with the invasion of this two nearby organs. The diagnosis of abdominal actinomycosis was obtained after pathology report.

## II. CASE REPORT

A Caucasian female patient age 82 presented to our clinic with a 4 weeks history of pain in the peri-umbilical

left area of the abdomen, weight loss about 6 kilograms, and alteration of the bowel habit with constipation and distension of the abdominal cavity. Physical examination revealed a palpable tender mass in the same area with a diameter of about 7 cm, fixed to the abdominal wall, unregulated shape, and hard consistency. The patient had a temperature of 37.6° C, described progressing fatigue during last four weeks, loss of appetite. She had several comorbidities: diabetes mellitus type 2 treated with oral medication, obesity grade II with a BMI of 35.7 kg/m<sup>2</sup>, arterial hypertension grade II, atrial fibrillation.

She presented to the hospital because the pain and the abdominal distention had increased. White blood cells were elevated 14.900/dL (8000 normal value-NV), mild anemia was found at blood tests.

Four weeks before admission the patient underwent a barium enema which showed normal colon. The patient didn't feel better and two weeks before surgery she had performed a CT scan which showed a tumor at the level of transverse colon, which appeared to infiltrate nearby organs: anterior transverse colon wall, pericolic fat, and posterior left rectus muscle sheet.

After CT scan she underwent a colonoscopy when a narrowing at the level of the transverse colon was discovered, no biopsies were taken because the mucosa was normal before the narrowed passage, which was impossible to be passed with the endoscope.

Under these circumstances a decision for laparotomy was taken. A median laparotomy was performed and a tumor about 8 cm diameter was found. The tumor was formed by transverse colon and his mesocolon, left abdominal rectus muscle above the umbilicus on a distance of 5 cm, great momentum and a jejunal loop. En bloc resection was done. The median incision was prolonged to the left at the level of umbilical scar, about 2 cm below the inferior limit of the tumor, same procedure was performed related to the cranial limit of the tumor. The transverse colon was resected with consecutive end-to-end colo-colic anastomosis. The jejunal loop was resected with jejuno-jejunal end-to-end anastomosis. At the end of the procedure the left rectus muscle sheets were sutured with separate sutures.

The histopathological examination showed chronic and acutesuppurative inflammation in the left abdominal rectus muscle, momentum, and transverse mesocolon,

multiple adhesions of the large bowel and small bowel, and a large number of abscesses, with the presence of sulfurous granules, indicative of intestinal actinomycosis. Patient refused the long-course antibiotic therapy, there were no relapses. Eighteen months after the procedure she was admitted with abdominal pain, with changes in the bowel habit, but the CT scan didn't reveal any masses, after conservative treatment the diagnosis was abdominal adherence. Four years after the procedure there were no recurrences; patient was admitted to the hospital with acute urinary retention.

### III. DISCUSSION

Actinomycosis is an uncommon chronic suppurative infectious disease that forms characteristic colonies that are recognizable by the presence of sulphur granules. This organism is a normal inhabitant of the oral cavity but is rarely pathogenic and only causes infection when it enters the tissue following a breach in the mucosal barrier. When infections occur the most affected region is cervicofacial and accounts for 55% of patients followed by the abdominopelvic presentation in 20% and the thoracic in 15% [3]. The abdominal form has been reported following acute appendicitis, diverticulitis, and abdominal operations [4]. Most commonly actinomycosis occurs in terminal ileus and appendix and rarely in the ascending colon, which is difficult to get obstructed. Our patient had colonic diverticulosis and this could be the reason for the development of the disease, and had transverse and jejunal involvements that are rarer and more difficult to diagnose.

Actinomycosis usually mimics subacute infections or malignant tumors and the radiologic diagnosis of this entity may be difficult. In our case the colon lumen was obstructed and no biopsies were taken. The CT findings suggested a tumor obstructing the colon and laparotomy was preferred in order to set the diagnosis and cure the patient. Due to the low prevalence of abdominal actinomycosis, and its unspecific clinical, laboratory and radiologic manifestations, this disease frequently is not considered, and the preoperative diagnosis only occurs in 10% of the cases [5]. Surgical treatment is usually required for the drainage of abdominal abscesses, sinuses, or the presence of intestinal obstruction or an abdominal mass.

What is unique for our case is the infiltration of the abdominal wall, colon and jejunum. Multiple resections were required in order to achieve the cure, resections which posed a high risk considering the comorbidities and the age of the patient.

Penicillin G and ampicillin are the first-choice therapy for actinomycosis. Initial treatment with parenteral penicillin G, 18–24 million units for 4–6 weeks can be followed by oral penicillin V or oral ampicillin for at least 6–12 months [6]. In our case due to the delay of the pathology report after two weeks after surgery the patient underwent a five-day antibiotic therapy with Metronidazole intravenous (iv) 500 mg two times daily and Ceftriaxone 2 g once daily, after the hospital discharge the patient refused further antibiotics.



**Fig 1. Computed-Tomography showing a tumor at the level of transverse colon, which appeared to infiltrate nearby organs: anterior transverse colon wall, pericolic fat, and posterior left rectus muscle sheet.**

### IV. CONCLUSION

Abdominal actinomycosis is a rare condition and poses great difficulties when diagnosis is to be made. Surgery has the main role in diagnosing and treating abdominal actinomycosis, although the bowel resections have a high risk and drainage can be achieved in easier ways, but the infiltrative behavior of the tumor usually asks for these large en bloc resections. Surgery has a good outcome when treating abdominal actinomycosis.

### CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare. Authors' contributions - All authors contributed equally to this work. All authors read and approved the final manuscript.



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