

Large retroperitoneal abscess extended to the inferior right limb secondary to a perforated ileal Crohn's disease: the importance of the multidisciplinary approach

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SUMMARY: Large retroperitoneal abscess extended to the inferior right limb secondary to a perforated ileal Crohn's disease: the importance of the multidisciplinary approach.

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The typical complications of Crohn's disease concerns small and large bowel. The full thickness inflammation of the intestinal wall de-

velops in strictures, fistulas and abdominal abscesses. Nowadays the most accepted therapeutic for intra-abdominal abscess option is antibiotic therapy and, in case of need, percutaneous drainage of the abscess. If the abscess passes through the pelvic foramen the abscess can involve the inferior limbs. We report a case a perforation of terminal ileum in Crohn's disease complicated by a large abscess of the right iliac fossa reaching the spaces between the anterior lateral muscles of the right thigh as far as the anterior lateral pre-tibial region. We discuss the diagnostic and therapeutic options in a multidisciplinary context.

KEY WORDS: Retroperitoneal abscess - Crohn's disease - Inflammatory bowel disease - Complications.

Introduction

The typical complications of Crohn's disease concerns small and large bowel. The full thickness inflammation of the intestinal wall develops in strictures, fistulas and abdominal abscesses (1-4). These are the most common complications during the course of the illness (5) and surgical treatment is frequently required in these occurrences.

Nowadays in case of a well-circumscribed intra-abdominal abscess the most accepted therapeutic option is antibiotic therapy and, in case of need, percutaneous drainage of the abscess (4, 6). The perforation can result in a retroperitoneal abscess that can reach the psoas and iliac spaces (7). More rarely, a breaching through the obturator fascia can result in abscesses. If the abscess passes through the sciatic foramen the abscess can involve the inferior limbs in posterior spaces; if it passes through the obturator foramen it can involve the anterior ones (7, 8).

We report a case a perforation of terminal ileum in Crohn's disease complicated by a large abscess of the right iliac fossa. It extended between the piriformis muscle, the medium and the small gluteal muscles reaching the spaces between the anterior lateral muscles of the right thigh as far as the anterior lateral pre-tibial region. We discuss the diagnostic and therapeutic options in a multidisciplinary context.

Case report

42 years-old man, was referred to our Institution because of the appearance of general signs and symptoms of sepsis with peritonitis and fasciitis of right inferior limb.

Patient's past medical history started 9 years before. He had been diagnosed with the Crohn's disease (stenosing type) and he was treated by a standard oral treatment (mesalazin and steroid) by a non-referral center for inflammatory chronic bowel disease.

Patient complained, since one week, severe right lumbosciatic pain. It was not-responding to the standard drugs (NSAID and steroids), and only partially to morphine.

After a few days several episodes of rectal bleeding appeared, and a progressive increasing in volume of the right thigh. At that moment, the patient interrupted the

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pharmacological treatment. Because of these symptoms he was admitted to gastroenterology unit of our University Hospital (Policlinico "P. Giaccone", Palermo, Italy). The physical exam pointed out $T > 38^{\circ}\text{C}$, tachypnea (respiratory rate = 23), oedema and erythema on the right limb extended from the gluteus and the thigh down to the ankle and subcutaneous emphysema; right lower abdominal pain was evoked with palpation. The laboratory tests showed an increase of WBC mostly neutrophil (29.600 WBC, N= 94%) and a CRP = 97 mg/l. A wide-spectrum antibiotic therapy (Vancomycin 2 grams/day + Clindamycin 2700 mg/day + Meropenem 3 grams/day) was started.

A contrast enhanced CT scan of the whole abdomen and the right inferior limb (Figure 1) showed two main large abscesses localized in the right iliac fossa and inferior pre-sacral region (cm 10 X 12), and in superior pre-sacral region, extended between the piriformis, the medium and the small gluteal muscles that reached the pre-fascial spaces between the anterior lateral muscles of the right thigh and the anterior lateral pre-tibial region. The last ileal segment (10 cm in length) presented radiologic signs of inflammation and it was substenotic. Also the proximal intestinal segment was moderately distended and showed fluid levels. The patient was therefore referred at our surgical institution.

Due the probable evolution in a severe sepsis, an emergency surgery management was established. The surgical findings were a brown fluid collection among the ileal loops, and a large purulent/fecal collection (400 cmc.) in pelvic region and right iliac fossa communicating through the obturator foramen with the right inferior limb was pointed out. The abscess was bounded by the terminal ileum. The bowel wall was thickened and a perforation close to the mesenteric margin was found. The caecum was congested and its wall was thickened as well. The abdominal collection was drained. The stomach, the small and large bowel were explored and no more localizations of the Crohn's disease were found. An ileocecal resection and a mechanic 25-EEA-stapled ileo-coelic termino-lateral anastomosis was performed. Moreover, four incisions were performed along the right inferior limb (Figure 2), and several fluid/gaseous collections were drained. A sample of the collection was sent for bacteriological examination. Two drainages tubes were placed through the abdominal wall in the Douglas cavity, and four drainages were placed through the skin incisions of the right inferior limb. A LMWH was established according to standard protocols.

In POD1, a 21 Kcal/Kg total parenteral nutrition (TPN) was started.

In POD2-3: WBC = 5.400/mmc, N = 84%. A serum/slightly purulent fluid (250 cmc each day) was drained from the abdominal tubes.

In POD4 an increasing of the abdominal drainage

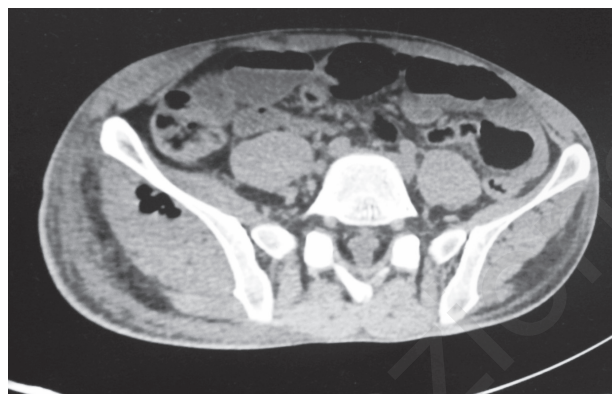


Fig. 1 - On CT scan evidence of two main large abscesses localized in the right iliac fossa and inferior pre-sacral region (cm 10x12), and in superior pre-sacral region.



Fig. 2 - Four drainage tubes inserted in the inferior right limb draining purulent collection.

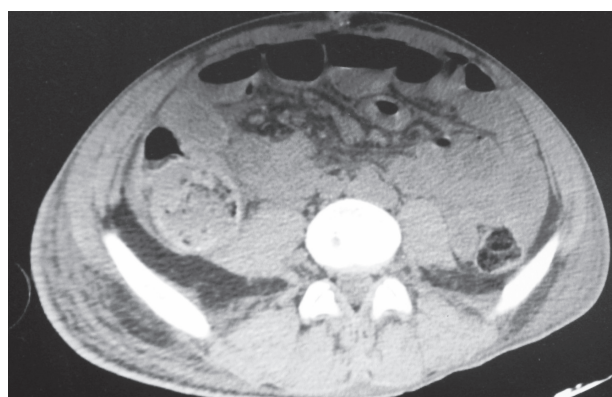


Fig. 3 - In POD 4 CT scan showed sub and over-mesocolic free gas and dilatation of the small bowel loops.

(400 cmc) was observed. It was clearly corpusculated; therefore a contrast abdominal CT scan was performed (Figure 3). It showed a mild-moderate amount of sub and over-mesocolic free gas and dilatation of the small bowel loops. A redo laparotomy was done in the same day. The free abdominal fluid was non-corpusculated. Two main corpusculated and non-fecal collections in the Douglas cavity and in the retroperitoneal space were found. The

anastomosis was carefully explored, as well as the remnant ileal loops and the colonic segments. No leakages were found along the entire bowel. Drainage of the collections and a peritoneal washing were performed once again, and one more drainage fluid culture was done.

In POD8 the antimicrobial tests showed three bacterial strains: *Escherichia Coli*, *Klebsiella Pneumoniae*, *Enterococcus Raffinosus* that was already treated by target antimicrobial therapy. O₂-hyperbaric treatment and a physical rehabilitation were started. An angiography CT scan of the distal body sections was performed. This exam highlighted a 2 X 1,4 cm pseudo-aneurism of the right pudenda internal artery and confirmed a considerable decrease in volume of the retroperitoneal collections; on the contrary, the amount of the free abdominal fluid was unchanged.

In POD9 a CT-guided drainage of the free abdominal fluid was scheduled. The procedure evacuates 650 cmc of serous peritoneal fluid and in the following hours a general improvement of the clinical performance status of the patient was observed. In POD10 an acute anemia (Hb = 7,5 g/dl) and an increase in abdominal drainage volume, that became bloody, were noted. A new CT-angiography showed an hyperdense pre-sacral fluid that displayed a recent bleeding arising from the pseudo-aneurism previously showed. The O₂-hyperbaric treatment and the physical rehabilitation were stopped. An Arteriographic embolization with multiple Avitene spirals was successfully performed the day after. During the following postoperative days several cultural examinations (blood, abdominal and limb fluids) were performed, and several fever peaks (40-41°C) were noted. The cultural examinations showed *Acinetobacter Baumannii* in the abdominal drainage and *Candida Parapsilosis* in the blood samples. According to the bacteriological findings, Polymyxin E (6.000.000 UI I.V. in three divided doses) and Fluconazol (800 mg I.V. a day) were added to the antimicrobial protocol. The PICC line was removed from the left brachial vein. One more similar intravenous device was put in the left basilic vein.

In POD 10 an acute anemia (Hb = 7,3 g/dl) and a bloody drainage of the upper tube of the lower right limb occurred once again. A contrast-enhanced abdominal CT was then performed. It showed an increase in volume of the presacral collections that were hyperdense as per recent bleeding. Moreover, a modest amount of air bubbles around the ileo-colic anastomosis were described. In the context of the subfascial soft tissues of the thigh, a contrast medium spreading, mainly organized in two collections, was proven. This finding did not allow to distinguish between a bleeding arising from the deep femoral artery or the femoral vein, although the spread increased in the late venous phase of the procedure. The arteriography, performed by a left common femoral artery access, confirmed the non arterial origin of the bleed-

ing; the phlebography, from the intact superficial femoral venous bloodstream, indicated the most probable origin of the bleeding in the deep femoral vein. A compressive bending of the right inferior limb was placed and LMWH therapy was stopped.

During the following postoperative days the patient was treated by target antimicrobial therapy. Due to persistence of the microorganisms previously isolated (*Acinetobacter Baumannii*, *Escherichia Coli*, *Candida Parapsilosis*) Vancomycin, Clindamicin, Meropenem and Fluconazol were interrupted and the Colimicin E (Colistin) was associated with the Gentamicin (240 mg I.V. each day, in three administrations), and, one week later, Daptomycin I.V. (350 mg. each day) with the aim of improving the activity towards the Gram+ microorganisms, Metronidazol (2000 mg I.V. each day, in four administrations) Ampicillin-Sulbactam (3 gr. I.V. each day, in 3 administrations) and Caspofungin (50 mg. I.V. each day). The CT scan monitoring showed a progressive, although not complete, decrease in volume of the abdominal collections. The continuous presence of a corpusculated fluids near the obturator foramen, and the clinical evidence of a communication between the abdominal compartment and the right limb (increase in fluid leakage trough the limb drainages after a deep compression of right abdominal wall) explained the difficult evacuation of these collections that were not ever related to an anastomotic or intestinal leakage. However, the anastomosis appeared always healthy in all the CT controls. Patient re-started the O₂-hyperbaric treatment and the physical rehabilitation with improvement to the general status. The bacterial colonies in fluids and blood samples disappeared, remaining only the *Candida Parapsilosis* previously found. In POD 65 the PICC line was removed and no fever was recorded in the next days.

In POD 70 the patient was discharged. The general performance and nutritional status was good, the fever had not appeared during the last 7 days. The bowel movements were regular.

One month after the discharge, the general status remains optimal.

Discussion

Crohn's disease is a chronic inflammatory bowel disease that can involve all the segments of the alimentary tract. It consists in a transmural phlogosis of the intestinal wall (9). Although the advances in medical treatment have reduced the indication to surgery, it remains a frequent occurrence during the course of the illness (10, 11). The surgical approach should be limited to the complications. Moreover, its relapsing tendency makes the patients at risk of redo surgery, although the surgery itself is not curative (6, 9).

In the presence of obstructions, toxic megacolon, perforations with diffuse peritonitis, abscesses or fistulas and bleeding an emergency surgical approach is still necessary (9, 12). In case of the abscesses, the actual guidelines indicate the percutaneous drainage as the treatment of choice: it can solve the abscess, or can allow a non-urgent surgery in optimizing the result. In case of failure the surgical operation becomes unavoidable (4). Guideline does not clearly indicate emergency surgical approach. In our opinion in the presence of a large abscess involving retro-peritoneum and inferior limb with signs of sepsis an immediate surgical operation is strongly recommended. Moreover, our aim was to bound as much as possible the evolution of sepsis. One of the possible causes of sepsis and of the unfavorable outcome is the bacterial translocation (13, 14). Concerning the surgical approach the present case did not meet the criteria for a safe laparoscopic procedure (9-15), due to its large diffusion in the soft tissues and the enteric quality of the collection. In the present case our approach appears in line with the indications of the literature (4, 5, 9, 16). The bowel was resected removing the diseased segment of terminal small bowel and ileo-cecal junction as indicated in the most part of experiences (5, 9, 11, 12). The surgical technique allowed in a context of sepsis is widely discussed, and the immediate anastomosis not universally accepted (17-19). In the lack of specific guidelines, although more criteria, such as peritoneal fecal contamination and increased C-Reactive Protein, were not in accordance with a direct ileo-colic anastomosis, in our choice the good general conditions, the absence of criteria for severe sepsis (20) and the distance of the administering of steroids played an important role in the decision making of carrying out the direct anastomosis (21). As usual at our institution, the ileo-colic anastomosis was performed in end-to-side with a 25 EEA stapler (22), although all the techniques of reconstruction with linear as well as EEA staplers or manual, do not affect the functional results (23, 24).

Another important aspect is the control of septic foci. It can be done by the local and the systemic control. After the previous surgical drainage, the persisting septic collections were treated with a CT-guided non-surgical drainage. It can be the definitive treatment that could solve the abscess in two third of the cases (4, 11, 25-27).

It appeared a reasonable solution especially for treating a collection remaining after the previous surgical procedure. Moreover the procedure itself was done concomitantly at the CT follow-up. At the same time, the control of the sepsis was done by a constant monitoring of the microbial involvement, according to the results of the repeated cultural exams. Concerning this aspect, the main problem was the presence of MDR *Escherichia Coli*, *Klebsiella Pneumoniae* and *Acinetobacter Baumannii*, resistant to carbapenems, extended-spectrum cephalosporins and fluorquinolones (28-30). The concomitant yeast contamination is a severe and potentially life-threatening infection that must be early detected and carefully monitored during the course of the disease. The Echinocandins shows an intense activity versus *Candida* spp. and has a favorable outcome (31). On the whole, the septic complications are an emerging problem during the natural history of Crohn's disease, that must be carefully monitored even during a TNF treatment (32).

In conclusion, the treatment of major complications of Crohn's disease remains a challenge. The guidelines present some obscure aspects, the general "good practice" indications and the experience of the teams prevails in determining the surgical and post-surgical choices.

The present case emphasizes the advantages of a multidisciplinary approach in the treatment of a so complex clinical entity, which fully involves a number of professionals and specialists. A shared responsibility between the gastroenterologist and the surgeon is needed in the decisions concerning the timing of surgery, the strategic surgical choices and the peri-operative cares.

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