EOSINOPHILIC GASTROENTERITIS: PERCUTANEOUS BIOPSY UNDER ULTRASOUND GUIDANCE.

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ABSTRACT

Eosinophilic Gastroenteritis (EG) is an unusual disorder characterized by diffuse or scattered eosinophilic infiltration of the digestive tract. The diagnosis is based on histology obtained by capsule, endoscopic, laparoscopic or laparotomy biopsy. The eosinophilic infiltration produces thickening of the small bowel wall that can be observed using sonography. The appearance produces the pseudokidney sign that can be used for biopsy guide-sign. We report the first case of EG diagnosed by percutaneous biopsy under ultrasound guidance.

KEY WORDS: Gastroenteritis, eosinophilic - Intestines, inflammation - Barium studies - Intestines, biopsy - Intestines, US.

INTRODUCTION

Eosinophilic Gastroenteritis (EG) is an uncommon disease characterized by focal or diffuse eosinophilic infiltration of the gastrointestinal tract. Since Kaijser described the first case in 1937 (1), about 250 cases have been reported (2). Infiltration of one or more layers of the gastrointestinal wall may be involved, as well as other organs. Clinical features depend on which layer and location are involved (3).

The definitive diagnosis requires pathologic confirmation that, in most cases, is performed perorally, either with capsule or endoscopia.

In some patients, endoluminal endoscopic evaluation of gastrointestinal abnormalities may not lead to a definitive diagnosis, especially where there is; extreme narrowing of the gut lumen, if the infiltration is submucosal, exclusively jejunal or ileal. In the cases, in which the peroral biopsy is not successful, the diagnosic material can be obtained by ultrasound-guided percutaneous biopsy (4).

We present the first case of EG, in which the definitive diagnosis has been established using ultrasound-guided percutaneous biopsy. We suggest using this method to achieve the pathologic diagnosis in other entities with intestinal involvement and, where for one reason or onother, the area affected cannot be reached by endoscopia.

CASE REPORT

A 74 year-old woman was admitted to our hospital with abdominal pain, diarrhea, astenia, anorexia and weight loss. On physical examination; a mass was palpated in the lower right quadrant. Mucocutaneous paleness was observed. Anaemia and hipoproteinemia, but no peripheral eosinophilia were detected in the laboratory data.

The barium study showed a pathological loop in the proximal jejunum, which was situated in the right side of the abdomen due to gut malrotation, the lesion was 10 cm long with alteration of the mucosal pattern and fold thickening (Fig. 1). In

the distal jejunum there was another pathological loop, 15 cm long with a fistulous tract connecting neighboring loops of jejunun (Fig. 2).

Ultrasound demonstrated a hypoechoic mass with ecogenic center (pseudokidney sign) in the lower right quadrant (Fig. 3) and a wall thickening loop in the upper left quadrant. Moderate amount of ascites and right hydronephrosis were observed.

The computed tomography (CT) showed a right pleural effusion and 2 thickened wall loops, one in the lower right quadrant involving the distal ileum with infiltration of peripheral fat, and the second one in the lower left quadrant with mild thickened wall (Fig. 4).

There were no abnormalities in the gastroscopy and colonoscopy.

Intestinal lymphoma was suspected and percutaneous biopsy under US guidance was performed for histological confirmation. The biopsy was carried out with a real-time scanner, 3.5 MHz microconvex transducer with a biopsy guide set. The point of the biopsy was chosen by pressing the transducer steadily and progressively in order to separate the normal loops and to have a proper view of the pseudokidney. Standard sterile and anesthesic techniques were used. Two passes were made with a 19.5 G automatic needle (Autovac, Angiomed, Karlsruhe, Germany) into the thickened wall, taking care not to perforate the lumen. Two cylindrical cares were obtained and a histological diagnosis of EG was made. There were no complications related with the technique. Initially, there was a good response to corticosteroids. However, the patient had a relapse 2 months later, and died due to intestinal occlusion and peritonitis.

DISCUSSION

EG is a rare disease of unknown etiology characterized by eosinophilic infiltration of the gastrointestinal tract with or without peripheral eosinophilia (5). It can involve any segment of the gastrointestinal tract in an isolated, scattered or exceptionally, in a diffuse way (6). Any segment of the gastrointestinal tract can be affected, from esophagus to rectum , but there is some preference for gastric antrum

and proximal small bowel (7, 8). Our case had scattered involvement of 2 jejunal loops.

Since Klein`s revision (9) three clinico-pathologic patterns are accepted, in relation with the infiltration of the different layers of the intestinal wall. If the involvement is predominantly mucosal, the patient suffers from abdominal pain, nausea, vomiting, diarrhea, and weight loss. If the muscular layer infiltration is dominant, the patient presents with symptoms of intestinal obstruction, due to wall thickening and rigidity, sometimes fistulae may appear**.** Finally, if the predominant site is in the subserosal layer, the clinical presentation includes abdominal pain, and eosinophilic ascites which is the hallmark of this group. In spite of this classification many authors find panmural involvement in most of their cases (5), as in our patient.

Radiologically, the hallmark of EG is mucosal fold thickening of the stomach and the small intestine, so we have to think of this entity**,** especially, when the patient presents with peripheral eosinophilia (7).

The diagnosis of EG is problematic, because the final diagnosis requires histological confirmation (7) which is sometimes difficult to achieve. If the involvement is predominatly mucosal endoscopy is the chosen technique, but if the mucosa is intact or the involvement is beyond the angle of Treitz, endoscopic biopsy will not obtain an adequate sample. Nevertheless, if the involvement is mucosal and extensive, the biopsy can be performed by peroral capsule. Until now, when the mucosa was undamaged or the involvement was scattered, the histological diagnosis had to be made by laparotomy. Recently, new laparoscopic tecniques have been described (10), which have to be performed on inpatient basis and requires general anaesthesia. These new tecniques have lower morbidity and mortality than laparotomy but higher than percutaneuos needle techniques.

The classical pseudokidney sign was described as a central echogenic core surrounded by a hypoechoic rim representing thickened intestinal wall due to various gastrointestinal tract lesions, either benign or malignant (11). It is believed that approximately one-half the circumference of the intestinal wall must be infiltrated to produce the typical pseudokidney sign (12).

The pseudokidney sign was first described in colonic carcinoma (13), and has also been described in many other entities such as in lymphoma as well as in a variety of benign intestinal diseases including, Crohn´s disease, ischemia, tuberculosis, pyloric stenosis, lymphangiectasia, intussusception, intramural hematoma, Menetrier´s disease and appendicitis, as well as in other inflamatory diseases (14).

The pseudokidney sign has also been described in EG (15), but we believe that our case is the first one confirmed histologically by percutaneous biopsy using ultrasound guidance.

Considering the technical problems that certain gastrointestinal tract disorders present in order to obtain histological diagnosis by endoscopy, compared with good visualization of the lesion (pseudokidney) by a dedicated sonography scan, we chose to use the ultrasound guided biopsy for histological diagnosis.

This technique is rarely used; only a few authors have described the utilization, intentionally, of the percutaneous biopsy of the gastrointestinal tract (4, 16). However, it has been described as a result of a biopsy of an abdominal mass of unknown origin. The intestinal origin was established subsequently.

The safety of traversing the bowel is controversial. The literature suggests that transpassing the normal bowel with a fine needle is safe. However, some authors do not advise use large bore needles when transpassing the bowel. In our experience, we had no complications when we transpassed normal bowel, even with large bore needle. However, we tried not to transpass the lumen in pathological bowels because we used not only a fine needle for cytological assessment but also a large bore needle for core biopsy.

In conclusion, due to the capability of ultrasound for guiding the percutaneous biopsy of the pathological loops with thickened wall (pseudokidney sign), we recommend this technique for EG diagnosis and other diseases with a thickened wall and which are not accessible for endoscopical diagnosis.

ILLUSTRATIONS

. Fig 1. Barium study: A malrotated loop of proximal jejunum lying in the right side of the abdomen. It shows fold thickening and a narrowed lumen with mucosal pattern alteration.

. **Fig 2.** Barium study: A loop of distal jejunum with an enteric fistula in it, with fold thickening and a narrowed lumen.

. Fig 3. Ultrasound: The sonographic pseudokidney sign appearance. The mucosal surface and air trapped within the bowel lumen produce the highly reflective echoes illustrated .

. Fig 4. CT scan displays the presence of a thickened wall loop in the right lower quadrant containing oral contrast medium (arrow) and infiltration of peripheric structures.

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