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Duplication of the Duodenum Revealed By Chronic Pain in the Right Hypochondrium: Case Report and Review of Literature

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Abstract **Case Report**

Duodenal duplication is a rare congenital malformation that can be observed in both children and adults. The symptomatology differs according to the type: cystic or tubular, communicating or not with the digestive tract. This malformation may remain asymptomatic but several complications may occur, such as digestive bleeding, episodes of pancreatitis or perforation. The treatment is usually surgical and consists of removing the malformation. However, endoscopic treatment has been described in some appropriate cases. We report the observation of a 48-year-old patient admitted to our department for chronic pain of the right hypochondrium, revealing duodenal duplication. The diagnosis was confirmed perioperatively and after anatomopathological examination. She was treated with surgical resection and she is asymptomatic *afterward.*

Keywords : Duodenum, Duplication, chronic abdomminal pain, cyst, surgical treatment.

INTRODUCTION

Duodenal duplication is a rare congenital malformation that affects only 4 babies out of 10 million births [1]. It can be antenatally diagnosed or stay asymptomatic and diagnosed in adulthood. This malformation includes a muscular wall lined with an ectopic digestive mucosa. Duodenal duplications constitute 4% of digestive locations [1]. They can be cystic or tubular, communicating or not with the digestive tract. It can be revealed by a complication: acute pancreatitis, intestinal obstruction, digestive bleeding or perforation [1]. The classic treatment is surgical resection of the duplication. We report here the case of a 48-year-old woman with chronic pain of the right hypochondrium revealing duodenal duplication.

CASE PRESENTATION

48-year-old patient underwent laparoscopic cholecystectomy 5 years ago, with no other notable medical history, who had been complaining for 2 years of atypical pain in the right hypochondrium, fixed without any particular radiation, digestive disorders or externalized digestive bleeding. The right hypochondrium was mildly sensitive on physical examination. Laboratory finding were normal, particularly the liver and pancreatic tests. The ultrasound showed fine intra- and extrahepatic bile ducts. Upon abdominal computerized tomography (CT), an intraduodenal cystic formation at the level of the second duodenum (D2) measuring 43*40*60 mm in diameter was observed, whose upper pole comes into contact with the ampulla of vater (Figure 1). The endoscopic ultrasound showed a peri-ampullary liquid formation in the inner wall of D2, with finely material in it, surrounded by a digestive wall made of 5 thin layers: highly compatible with duodenal duplication. The oesogastroduodenal transit with spiral acquisition by CT showed an endoluminal formation in D2, of hydric tonality and does not become opaque secondarily by the contrast (Figure 2). We concluded that it is a non-communicating duodenal duplicity.

Preoperative exploration discovered a duodenal cystic formation. Histological analysis of the resected lesion confirmed the presence of intestinal mucosa. The diagnosis of duodenal duplication can be made in our patient in view of the anatomical location, the scan and echoendoscopic aspect and the anatomopathological results of the resected part. After the surgical treatment, the patient has remained asymptomatic with a 6-month follow-up.

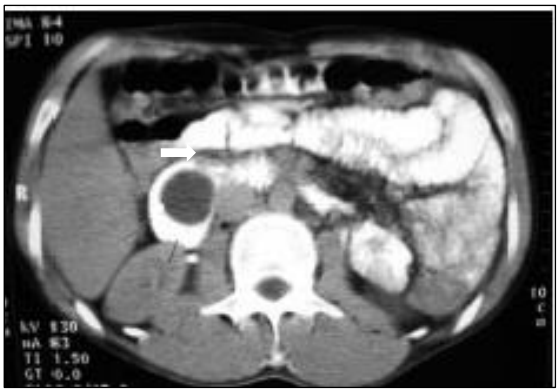

Fig-1: Intravenous contrast enhanced abdominal CT imaging : formation hanging from the inner wall of D2

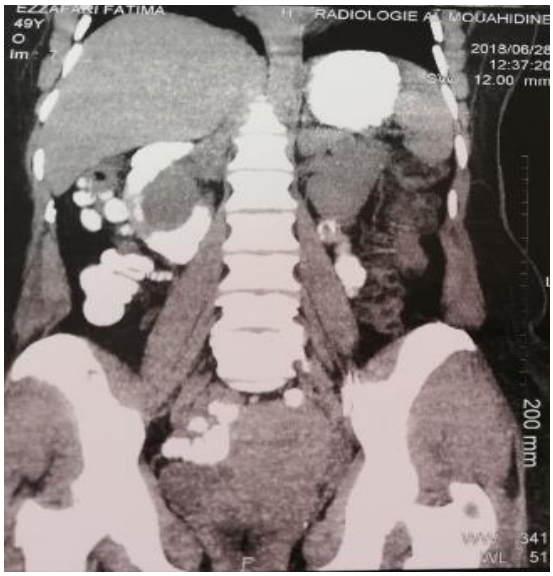

Fig-2 : Oral and intravenous contrast-enhanced abdominal CT imaging: no communication was identified between the cyst and the duodenum lumen.

DISCUSSION

Duodenal duplication is a rare disease (1/100,000 births) [1]. Duplication can be observed along the digestive tract. The most frequent locations are jejunoilial, then colic and gastroduodenal. Duodenal duplication represents 4% of these digestive locations and is often associated with other malformations: scalloped vertebrae or intestinal malrotation [1-2]. They can be cystic or tubular, communicating or not with the digestive tract. The most common form is non-communicating cystic duplication and it is often located at the medial border of the first and second parts of the duodenum and extend to the anterior or posterior side [2]. In our case, the duplication was cystic and located in the second part of duodenum.

This malformation is found in more than 60% before the age of one year, but late revelations in adulthood are possible. Non-communicating duodenal duplications are early revelations, pseudo-diverticular communicating forms are later revelations [1]. Pathogenesis remains highly debated and several theories have been put forward [3]. They have a clinical polymorphism but generally, patients present for abdominal pain (34%), abdominal masses (10.5%) or complication: intestinal obstruction, digestive bleeding, acute pancreatitis [4].

The positive diagnosis requires morphological examinations. The ultrasound shows a liquid anechoic image in the head of pancreas. The presence of peristalsis may suggest the diagnosis, but it is inconsistent [5]. Injection CT finds a double contour appearance of the duodenal wall [6]. It makes it possible to specify its seat and the communicating or non-communicating nature. Endoscopic ultrasound may diagnose duodenal duplication by highlighting an anechoic fluid image of the duodenal wall surrounded by 5 thin layers [7]. The main differential diagnosis is choledochocele, where the mucosa is biliary type. While in duodenal duplication, it is duodenal type [8-9].

The management of duodenal duplication depends on the type, volume and location in relation to the duodenal wall, pancreas and bile ducts [2]. Treatment, when duodenal duplication is symptomatic, is traditionally surgical, ranging from partial excision after duodenotomy to cephalic duodenopancreatectomy [1]. However, endoscopic treatment has been described in some appropriate cases. Morphological examinations assist in the decision by specifying the location of the duplication and whether or not it communicates with the bile or Wirsung duct.

In the reported case, duodenal duplication did not involve communication with the bile and the Wirsung ducts. We have opted for a total resection. The treatment of communicating lesions consists of partial excision and mucosectomy or marsupialization in the duodenum after ensuring that the mucosa of the duplication was not of gastric. The internal derivations have been described but are not unanimous. They consist of a cystoduodenostomy allowing effective drainage of duodenal duplication [10]. Endoscopic treatment is also possible and has been described by many authors. To our knowledge, only twelve cases of duodenal duplication treated endoscopically have been reported in the literature. No complications were reported [11-12].

CONCLUSION

Duodenal duplications, very rare in adults because they are most often diagnosed in childhood. They have a clinical polymorphism that makes their diagnosis difficult. The diagnosis essentially involves morphological explorations but can only be confirmed peroperatively and after an anatomopathological study. The reference treatment is surgical, by excising the malformation, if it is impossible, partial removal of the cystic wall or an internal derivation allowing adequate drainage of the cyst can be sufficient.

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