

## Radiological Case Report / Caso Clínico

**Duodenal Hematoma after upper Gastrointestinal Endoscopy: Case Report and Literature Review***Hematoma Duodenal Pós Endoscopia Digestiva Alta em Idade Pediátrica: Caso Clínico e Revisão da Literatura***Marta Reis de Sousa, Ana Catarina Vieira, Gisela Rio, Ângela Moreira, Maria José Noruegas, Conceição Sanches**Centro Hospitalar e Universitário de Coimbra –  
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email: martareisdesousa@gmail.com**Abstract**

Duodenal hematoma is a rare complication of endoscopic duodenal biopsy, with just a few cases reported in children in the literature available.

The authors present a case of a 13 year-old girl, with a history of Noonan Syndrome and neurofibromatosis type 1, who presented abdominal pain and vomiting after an endoscopic duodenal biopsy.

In this article, we describe the clinical case, imaging findings, evolution and therapeutic approach.

We briefly discuss the hematologic complications in patients with Noonan syndrome.

A review of the literature and data from similar cases reported are briefly presented and discussed.

**Keywords**

Digestive system abnormalities; Duodenal hematoma; Endoscopy.

**Resumo**

O hematoma duodenal é uma complicação rara da endoscopia digestiva alta com biópsia duodenal, com poucos casos em idade pediátrica descritos na literatura.

Os autores descrevem o caso de uma adolescente de 13 anos, com antecedentes de síndrome de Noonan, neurofibromatose tipo I, que após endoscopia digestiva alta inicia quadro de dor abdominal e vômitos.

Neste artigo são descritos a apresentação clínica, os achados imagiológicos, bem como a evolução e a terapêutica proposta.

É feita uma breve apresentação e discussão de casos descritos na literatura.

É feita uma breve revisão acerca das alterações hematológicas em pacientes com síndrome de Noonan.

**Palavras-chave**

Anomalias do sistema digestivo; Hematoma duodenal; Endoscopia.

**Clinical Case**

A 13-year-old female, with a history of Noonan syndrome, neurofibromatosis type I, growth retardation, weight between P10 and P25, and stature below P5, followed in multiple specialties at our institution.

No regular medication.

Due to the presence of recurrent episodes of epigastric abdominal pain, an upper endoscopy (UE) was performed which revealed erythematous gastritis. Antral and duodenal biopsies were performed. The endoscopy proceeded without immediate complications, with normal progression of the endoscope.

24 hours after endoscopy, the patient presents with vomiting, nausea and persistent epigastralgia with pyrosis. She was hemodynamically stable.

Analytically, there was elevation of pancreatic enzymes with amylase 252 U / L (normal 30-110) and lipase 542 U / L (normal 23-300). The remaining analytical parameters were normal, namely hemoglobin, platelet count and coagulation tests (INR, TP, aPTT).

Abdominal radiography revealed no significant changes (Fig. 1). An abdominal ultrasound was performed, which revealed a heterogeneous collection anterior to the pancreas, and free intraperitoneal fluid in the pelvis. (Fig 2).

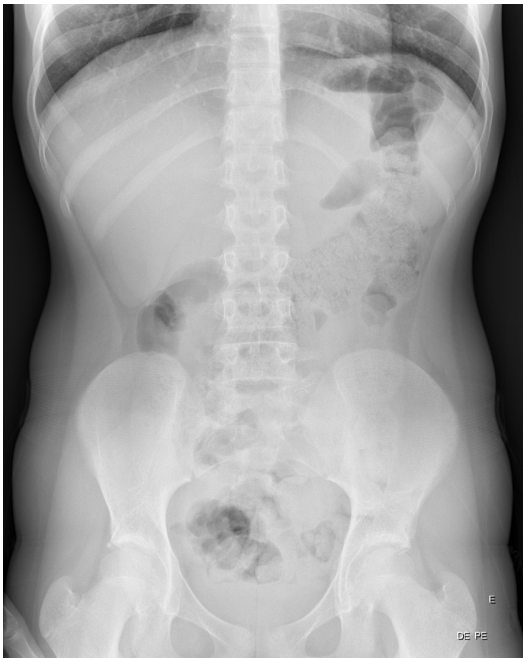
Subsequently, a computed tomography was performed for better characterization, which revealed findings compatible with intramural duodenal hematoma (Fig. 3).

She was submitted to conservative treatment with symptomatic improvement: pain control, intravenous hydration, nutritional support and antibiotics (ampicillin, gentamicin and metronidazole). She presented a good clinical and analytical evolution.

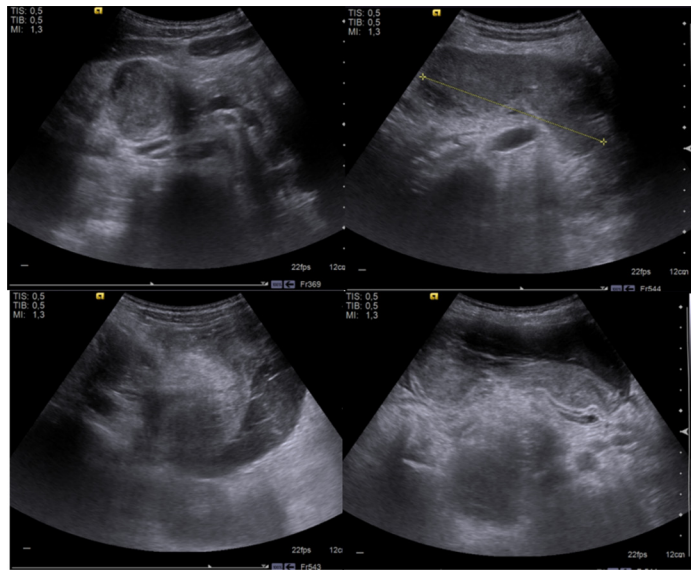
Imaging wise ultrasound control with progressive reduction of the dimensions of the described collection was performed.

**Discussion**

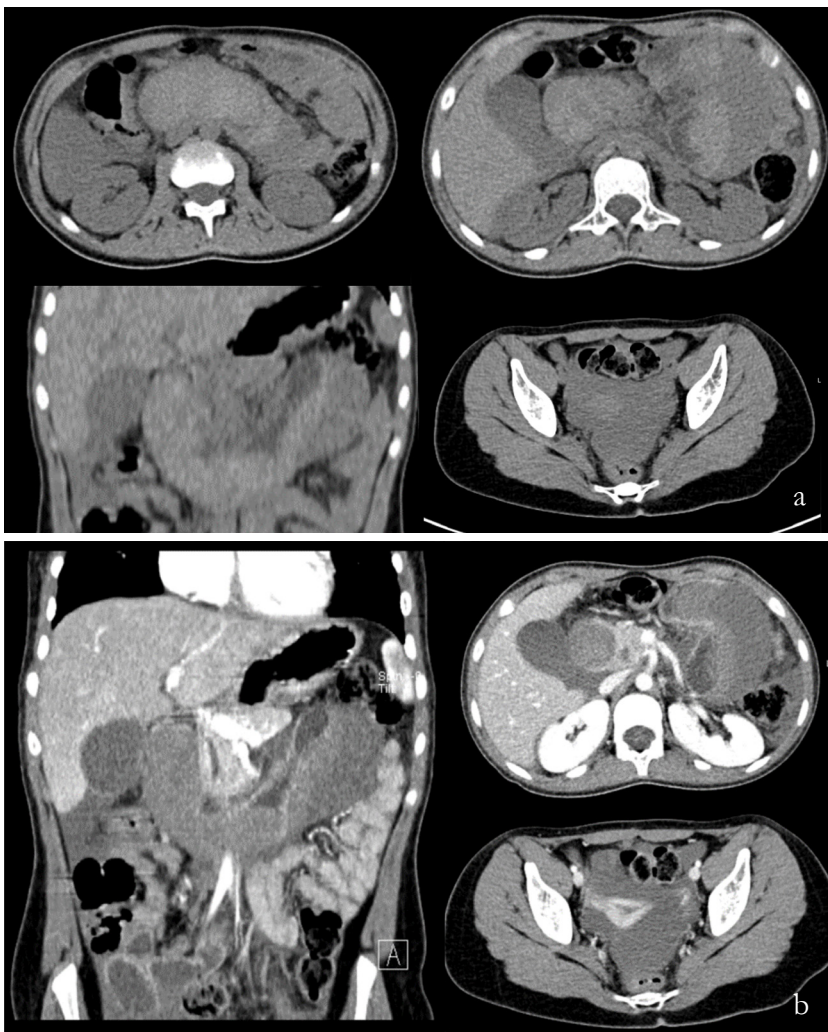
Intramural duodenal hematoma is a rare pathology in pediatric patients, occurring more frequently after blunt abdominal trauma.<sup>1,2</sup> The incidence of intramural duodenal hematoma as a complication of UE with duodenal biopsy is not known, with 18 cases described in the pediatric literature.<sup>1</sup> It is estimated to occur in 1 in every 1250 UEs.<sup>1</sup> Among the known risk factors for its occurrence are coagulation and hemostasis disorders, malnutrition, and growth retardation.<sup>3,4,5</sup> However, in 28 cases described in the literature, both in adults and children, only 6 had changes in the coagulation tests or platelet dysfunction.<sup>1</sup>



**Figure 1** – Abdominal radiograph, standing, without significant changes, namely signs of pneumoperitoneum.



**Figure 2** – Abdominal ultrasound reveals elongated collection, measuring 12 cm x 5 cm (LxAP) with heterogeneous echogenic content and fluid/fluid level, located anteriorly to the pancreas.



**Figure 3** – Computed tomography before (a) and after (b) intravenous contrast, with axial and coronal reconstructions reveals a heterogeneous collection, spontaneously hyperdense, without contrast enhancement, that follows the duodenum from the second to fourth portion, compatible with intramural duodenal hematoma. Absence of dilation of the bile ducts. The pancreas presents normal dimensions and homogenous enhancement. Moderate amount of fluid in the pelvic excavation.

This complication has also been described in patients with leukemia or a history of bone marrow transplantation.<sup>3</sup> Intramural duodenal hematoma is frequently associated with acute pancreatitis and is probably related to the presence of ampullary hematoma with obstruction of the papilla, or to the compression exerted on the pancreas by the hematoma.<sup>6,7</sup> There are two cases described in the literature of patients with Noonan syndrome who developed duodenal hematoma as a complication of UE with duodenal biopsy. The authors associate this complication with the frequent presence of growth retardation and coagulation and hemostasis alterations in these patients.<sup>5,7</sup> Hemorrhagic problems have been reported in approximately 55% of these patients.<sup>6</sup> Noonan syndrome may be associated with deficiencies of coagulation factors (factor VIII, XI, XII), thrombocytopenia and platelet dysfunction.<sup>8,9</sup> In these patients coagulation tests with platelet count, aPTT, TP is recommended. In some cases platelet function tests and clotting factor counts may be required.<sup>9</sup> In the clinical presentation, symptoms caused by duodenal obstruction, with nausea and vomiting, predominate. If symptoms of abdominal pain and vomiting occur in the first 48 hours after duodenal biopsy, the diagnostic hypothesis of intramural hematoma should be considered.<sup>1</sup> The diagnosis is confirmed by imaging, followed by conservative treatment, usually with good prognosis, with an estimated resolution time of two to three weeks.<sup>2,1</sup> Surgical approach may be indicated if there is suspicion or confirmation of perforation or in the absence of improvement with conservative treatment.

Abdominal ultrasound is a rapid and accessible examination that allows evaluation of the presence of duodenal hematoma as well as its evolution.

Computed tomography allows a better characterization and evaluation of the hematoma extent, allows the diagnosis of perforation, which is why it should be performed early.<sup>1</sup> MRI also allows characterization of lesions and evolutionary control.

Upper gastrointestinal series may be useful to demonstrate duodenal obstruction,<sup>1</sup> evidencing an obstructive mass or diffuse thickening of the duodenal folds,<sup>2</sup> but it may underestimate the lesion extent.

Ultrasound guided drainage may be considered if there is no reduction in size of the hematoma within in 7-14 days.<sup>1</sup>

## Conclusion

Intramural duodenal hematoma is a rare complication after UE with biopsy. The diagnosis is confirmed by imaging. This complication must be known and considered by radiologists when after UE with duodenal biopsy the patient presents with nausea, vomiting and abdominal pain, since early diagnosis, management and evaluation of associated complications is crucial. Ultrasonography is the first-line examination, and computed tomography allows better characterization, evaluation of lesion extent and detection of other associated complications.

**Received / Recebido** 13/03/2017

**Acceptance / Aceite** 25/05/2017

### Ethical disclosures / Divulgações Éticas

*Conflicts of interest:* The authors have no conflicts of interest to declare.

*Conflitos de interesse:* Os autores declaram não possuir conflitos de interesse.

*Financing Support:* This work has not received any contribution, grant or scholarship.

*Suporte financeiro:* O presente trabalho não foi suportado por nenhum subsídio ou bolsa.

*Confidentiality of data:* The authors declare that they have followed the protocols of their work center on the publication of data from patients.

*Confidencialidade dos dados:* Os autores declaram ter seguido os protocolos do seu centro de trabalho acerca da publicação dos dados de doentes.

*Protection of human and animal subjects:* The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki).

*Proteção de pessoas e animais:* Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pelos responsáveis da Comissão de Investigação Clínica e Ética e de acordo com a Declaração de Helsínquia da Associação Médica Mundial

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