

## Duodenal Metastasis of Breast Cancer: A Case Report and Review of the Literature

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### Abstract

**Rationale:** The usual metastases of breast cancer are mainly represented by the following organs: lymph nodes, bone, liver, lung, pleura and brain. While gastrointestinal involvement remains rare. **Patient Concerns:** A 67-year-old postmenopausal woman presented with abdominal pain and obstructive symptoms, she was diagnosed with duodenal metastasis of breast cancer with infiltration of the duodenal mucosa by lobular breast carcinoma. The patient had undergone the right breast mastectomy for infiltrating lobular carcinoma 6 years previously. **Diagnosis:** Metastatic infiltration of the duodenal mucosa by mammary lobular carcinoma was proven histologically and immunohistochemically. **Lessons:** The importance of thinking about metastases of the gastrointestinal tract in the presence of non-specific and vague symptoms and of clearly differentiating in this context these metastases from primary gastrointestinal tumors.

**Keywords:** Breast cancer, duodenal cancer, invasive lobular carcinoma, metastasis.

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### INTRODUCTION

Breast cancer is the most common malignant tumor in women and the second most common cause of cancer death in them. The usual metastases of breast cancer are mainly represented by the following organs: lymph nodes, bones, liver, lungs, pleura and brain. While gastrointestinal and retroperitoneal organ involvement remains rare. Although ductal carcinoma infiltrant (DCI) is the predominant type of breast cancer, lobular carcinoma infiltrant (LCI) is the least common histological type but is responsible for almost all metastasis to the gastrointestinal tract [1, 2]. We present a case of duodenal metastasis in a woman with a personal history of infiltrating lobular carcinoma of the breast diagnosed 6 years ago.

### CASE REPORT

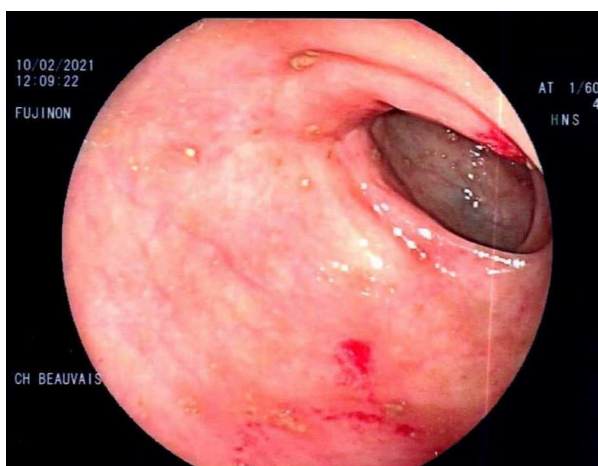
In February 2021, a 67-year-old menopausal Caucasian woman was admitted to the emergency room for intense liver colic of acute onset. Our patient had a personal history of a lobular infiltrating breast carcinoma RH + HER2 - Ki67 at 50%, metastatic to bone, the patient had benefited from several therapeutic lines (an initial right mastectomy....), currently under

treatment with Palbociclib and Flvestrant, however she had no notable family history. The history of her illness dates back to two days after her admission with the sudden onset of abdominal pain in the right hypochondrium in a hemi-girdle towards the right scapula, permanent, unbearable, rated at 9/10 on the pain scale, without any aggravating or calming factors, so it was a hepatic colic type of pain associated with early postprandial food vomiting, all evolving in a context of asthenia, anorexia. The physical examination found a conscious patient well oriented in time and space, eupneic, tachycardia at 114 beats per minute, normotensive, the body mass index (BMI) was equal to 14 kg/m<sup>2</sup>, loss of autonomy (WHO at 3-4) and in whom the abdominal examination objectified a sensitivity in the right hypochondrium and gastric lapping

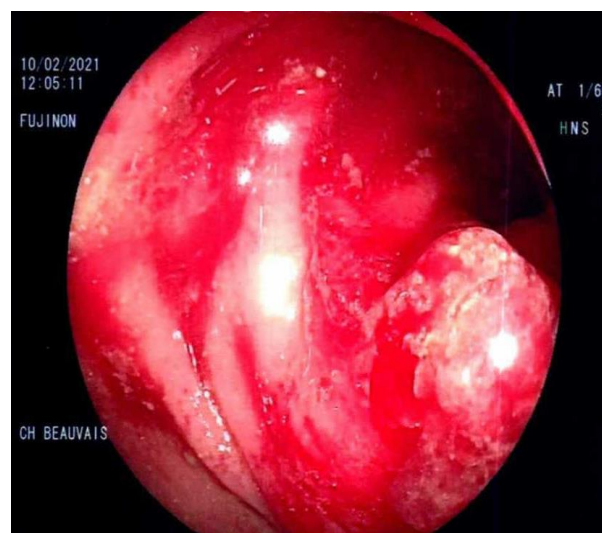
In front of this symptomatology an abdominal ultrasound was carried out which objectified a vesicular lithiasis with dilatation of the intrahepatic bile ducts and a borderline choledochus. This was completed by an endoscopic ultrasound with the following steps: descent by the endoscope under visual control to the bulb. Doubt on a duodenal stenosis. By trans-bulbar approach the choledochus was slightly dilated to 8 mm, with the

presence of a stone. The gallbladder is lithiasis. A perihepatic effusion was noted and a suspicious sub-centimetric lesion in the left liver. It was decided to repeat the examination with a gastroscope which confirmed the presence of a stenosis at the D1-D2 junction impassable by the gastroscope, opacification objective a long stenosis, realization of multiple biopsies at the level of the stenosis. Immunohistochemical analysis showed infiltration of the chorion of the duodenal mucosa by a carcinomatous proliferation, arranged in sheets and trabeculae. The tumor cells are medium-sized, with eosinophilic cytoplasm, and not very cohesive. The nuclei are enlarged, hyperchromatic, with irregular outlines. The residual duodenal glands are not dysplastic. On immunohistochemistry, the tumor cells express CK7, estrogen (50%) and progesterone (25%) receptors. They do not express Cadherin, CDX2 or CK20. In conclusion, it was an infiltration of the duodenal mucosa by a mammary lobular carcinoma. The thoracic-abdominal-pelvic CT scan showed dilatation of the intrahepatic bile ducts without identifiable choledocholith obstruction; D1-D2 stenosis without identifiable pancreatic tumor; contrast enhancement of the second sigmoid loop with thickening of the wall; absence of identifiable digestive artery occlusion and peritoneal effusion, particularly perihepatic and perisplenic.

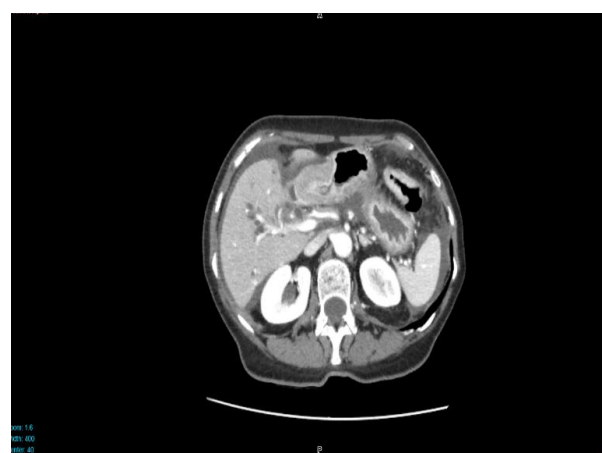
The positron emission tomography examination showed a hepatic hypermetabolic lesion (segments VI and IV) extending over 15 mm and 8 mm of major axis in the axial plane respectively: to be confronted with a hepatic MRI for characterization; a diffuse hypermetabolism of the first and third duodenal segments, without detectable scannographic lesion; an intense and circumferential sigmoidal hypermetabolism (27 × 15 mm) and a probable hypermetabolic centimetric adenopathy, located near the pancreatic head. For the exploration of the sigmoidal hypermetabolism, a rectosigmoidoscopy only objectified a diverticulosis without any other associated lesion.



**Figure 1: Endoscopic image showing duodenal stenosis**



**Figure 2: Endoscopic image showing a stenosing budding duodenal process**



**Figure 3: CT scan showing duodenal thickening**

## DISCUSSION

Duodenal metastases from breast cancer are rare [3]. The clinical manifestations of duodenal metastases are nonspecific, with clinical symptoms of abdominal pain, nausea, vomiting, or upper GI bleeding [4, 5]. In some cases duodenal metastases of breast cancer may present as a picture of upper bowel obstruction [6]. All these clinical symptoms are not specific for metastatic origin, hence the interest to complete the investigations by paraclinical examinations, in particular by upper GI endoscopy with multiple biopsies, as immunohistochemical study is the most reliable way to differentiate metastatic duodenal tumors from primary duodenal tumors.

In the majority of cases, duodenal metastases appear years after the diagnosis of breast cancer, which is the case of our patient because the diagnosis of duodenal metastasis was made 6 years after the diagnosis of breast cancer.

Nakamura *et al.*, showed from autopsy studies that the incidence of breast cancer metastasis to the gastrointestinal tract was 8.9% [7].

In Annals of Surgical Oncology, McLemore showed in a large series of patients followed for metastatic breast cancer that only 73 patients had gastrointestinal metastases out of a total of 12001 patients and that small bowel metastases accounted for 19% of breast metastases to the gastrointestinal tract and confirmed that lobular breast carcinoma was responsible for almost all cases, almost 80% of gastrointestinal metastases [8].

Duodenal metastasis of breast cancer has a poor prognosis and requires prompt and effective diagnostic and therapeutic management. This immediate management is strongly associated with improved quality of life and short and long-term prognosis [8].

## CONCLUSION

Duodenal involvement as a late site of distant breast cancer metastasis is relatively rare. The exact incidence of duodenal metastases is difficult to estimate, as in most cases patients remain asymptomatic or minimally symptomatic and the symptoms present are nonspecific to the site of metastasis, making early diagnosis difficult. Duodenal metastases usually appear within 2 to 13 years after diagnosis of breast cancer. The immunohistochemical study remains the gold standard for the diagnosis of duodenal breast cancer metastases.

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