Case study

Gastrointestinal Stromal Tumors of Neurofibromatosis Type I : a case report

Abstract:

Von Recklinghausen's disease or neurofibromatosis type 1 is an autosomal dominant condition that affects the central nervous system, it is characterized by neoplastic and non neoplastic disorders involving tissues of neuroectodermal and mesenchymal origin . Gastrointestinal stromal tumor (GISTs) are considered to develop from intestinal cell of Cajal ,the most genetic predisposition common is neurofibromatosis of type 1, where GISTs are often multiple

A 52-year-old female with known Von Recklinghausen's disease (VRD), her family history revealed VRD in her brother . presented with abdominal pain. A physical examination found multiple cutaneous and subcutaneous nodules and Café-au-lait pigmentation all over the body. A CT scan of the abdomen showed heterogeneously abdominal mass.she underwent surgical resection.

Pathological diagnosis and immunohistochemical was gastrointestinal stromal tumor

GISTs represent the most common gastrointestinal manifestation of NF1, sporadic GISTs arise predominantly in the stomach, about 90% of Von Recklinghausen's disease Patients have a tendency to develop GISTs wich located in the small intestine usually in the jejunum and characterized by their tendency for multiplicity

Gastrointestinal stromal tumors associated Von Recklinghausen's disease has been described to comprise a minority of cases , We report a clinical case of the association of GIST with NF1 in whom surgical resection was performed

Keywords : Neurofibromatosis Type I , GIST ,

Introduction

Von Recklinghausen's disease or neurofibromatosis type 1 is an autosomal dominant condition that affects the central nervous system, it is characterized by neoplastic and non neoplastic disorders involving tissues of neuroectodermal and mesenchymal origin (1)

Gastrointestinal stromal tumor (GISTs) are considered to develop from intestinal cell of Cajal ,the most genetic predisposition common is neurofibromatosis of type 1, where GISTs are often multiple, in the small bowel, and not mutated for KIT / PDGFRA(2)
This work has been reported in line with the SCARE criteria(3)

Case Presentation

A 52-year-old female with known Von Recklinghausen's disease (VRD), her family history revealed VRD in her brother . presented with abdominal pain. A physical examination found multiple cutaneous and subcutaneous nodules and Café-au-lait pigmentation all over the body (Fig. 1). No abdominal mass, hepatosplenomegally or ascites were found . A CT scan of the abdomen showed a 59 × 35 × 60 mm heterogeneously abdominal mass, with necrosis (Fig. 2). Laboratory data showed a high level of tumor marker, the esophagogastroduodenoscopy colonoscopy were normal .she underwent surgical resection under general anesthesia using laparotomy, A cystic mass approximately 5 × 6 cm was seen that arose from the duodenum (Fig. 2) , no evidence of metastases was found at abdominal exploration, the tumor and was resected.
specimen showed a 65 × 60 × 35 mm tumor with a beige surface without marge involvement (Fig. 2). Pathological diagnosis and immunohistochemical was gastrointestinal stromal tumor that was positive for CD34 and weakly positif to CKIT.

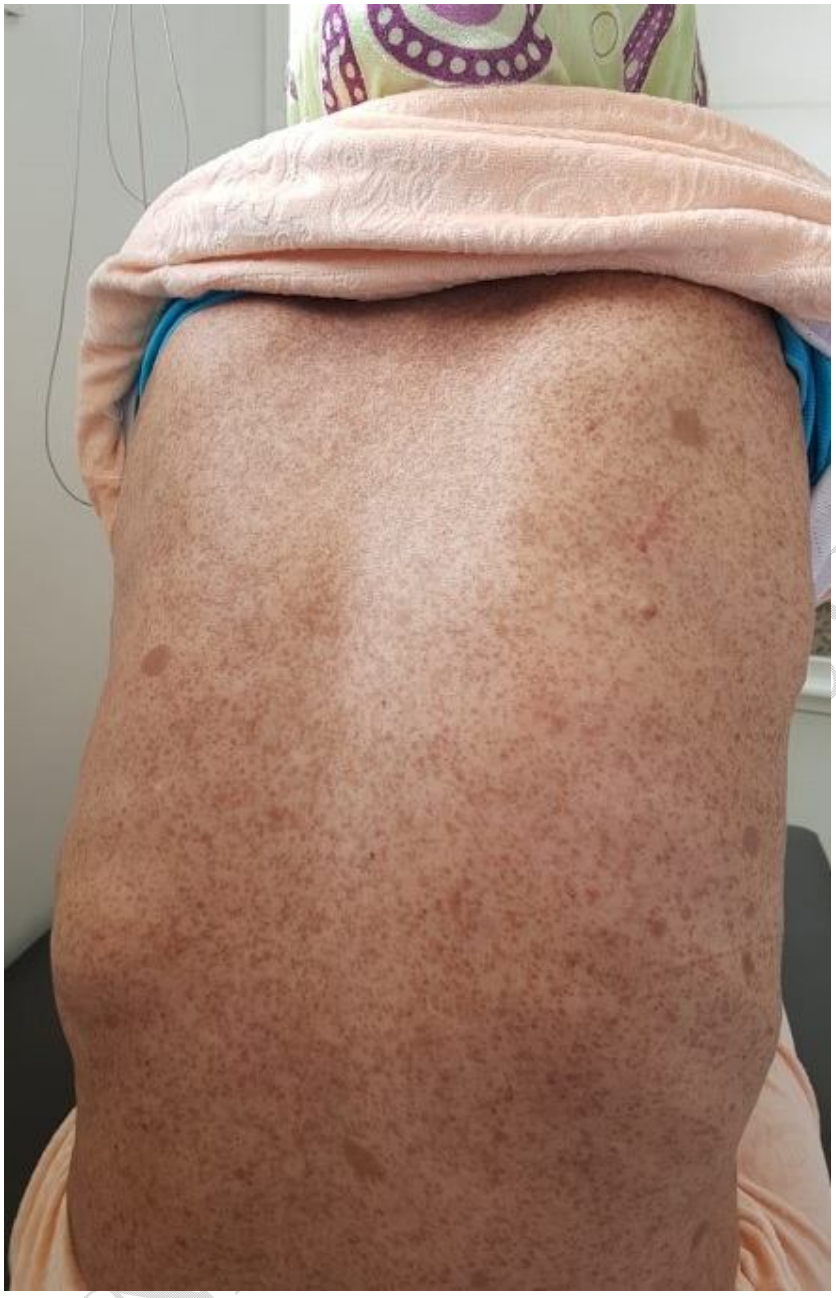

Figure 1. : Cafe-au-lait pigmentation with multiple cutaneous and subcutaneous nodules on the trunk.

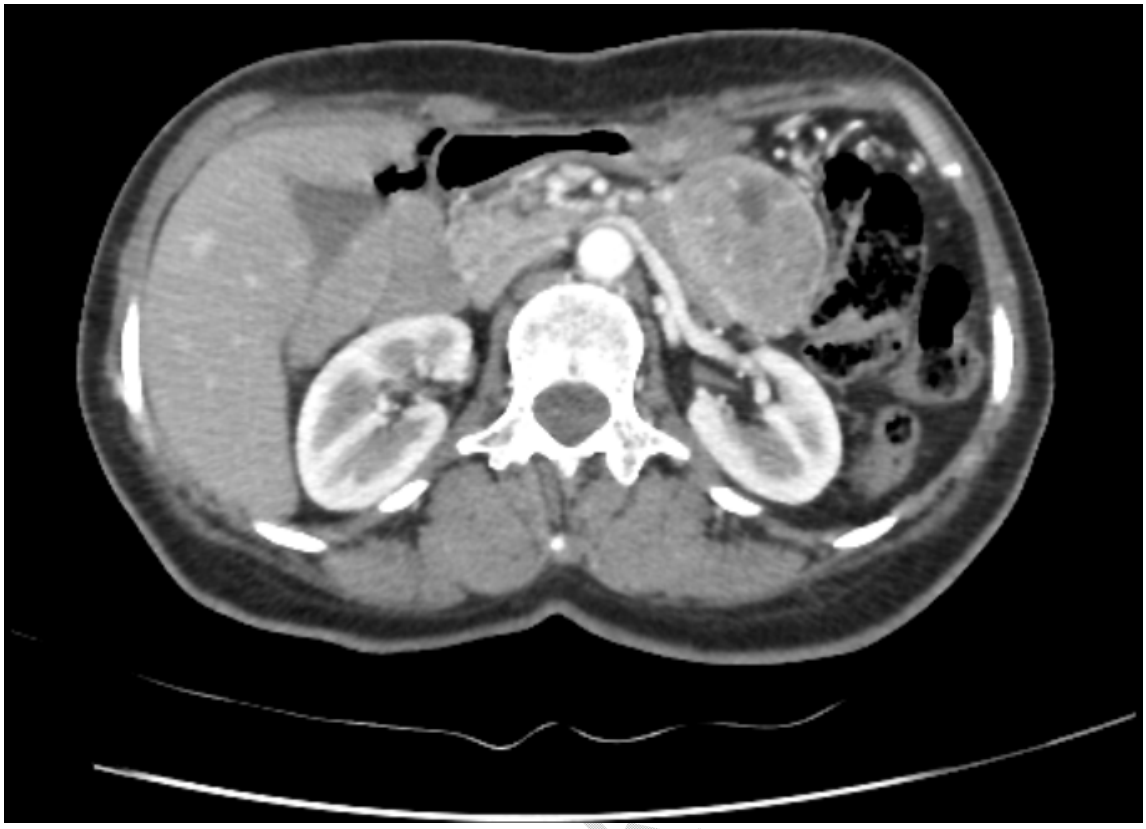

Figure 2. Abdominal CT scan shows an heterogeneously abdominal mass

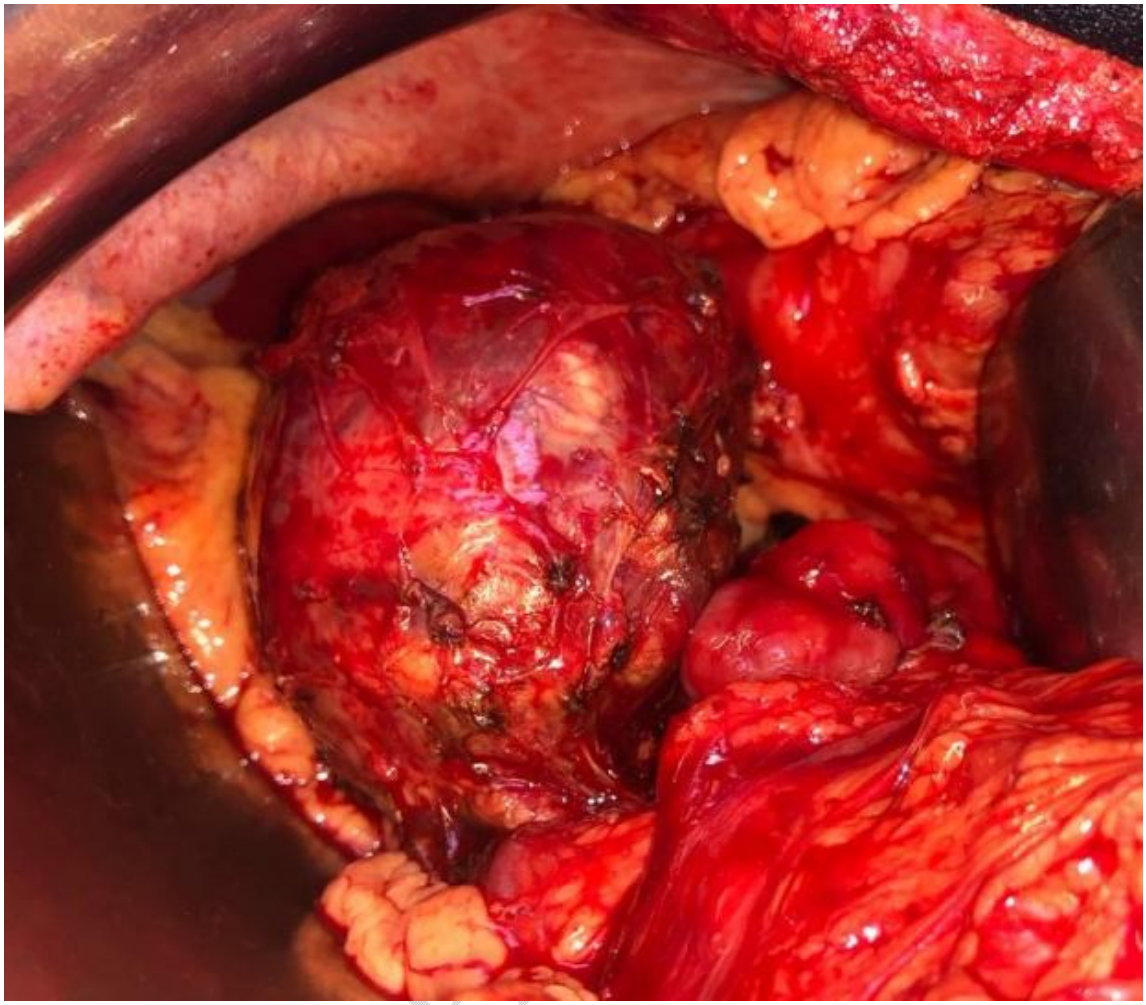

Figure 3. Intraoperative photograph showing the presence of a 6 cm cystic mass in the right upper quadrant of the abdomen.

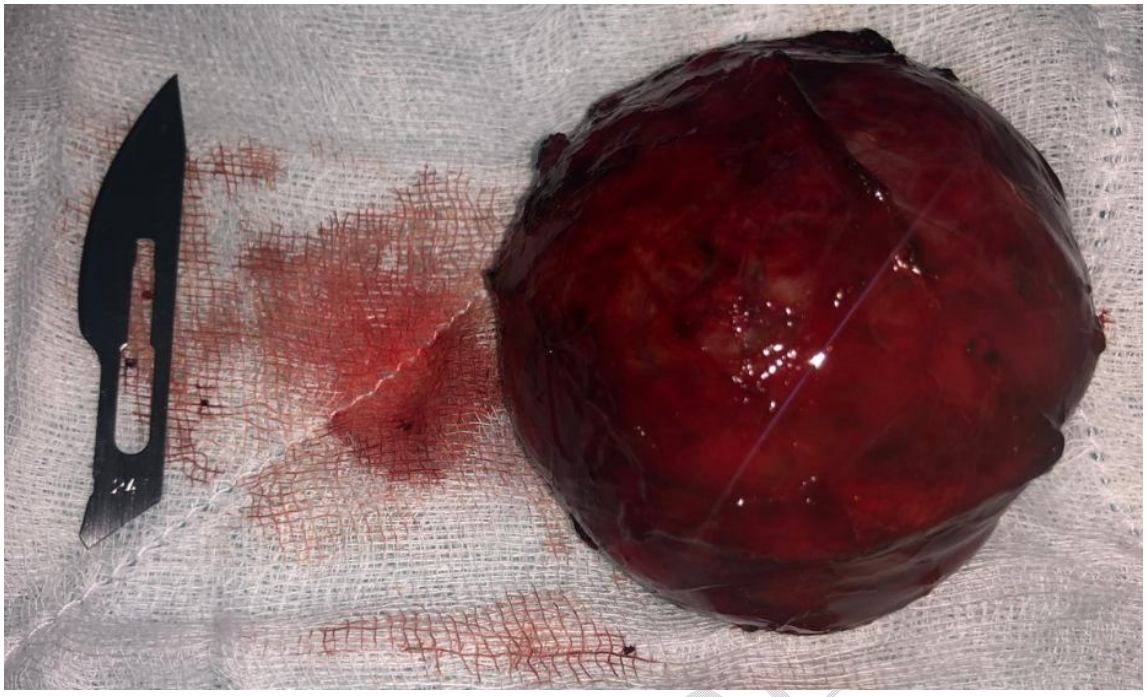

Figure 4. Specimen.

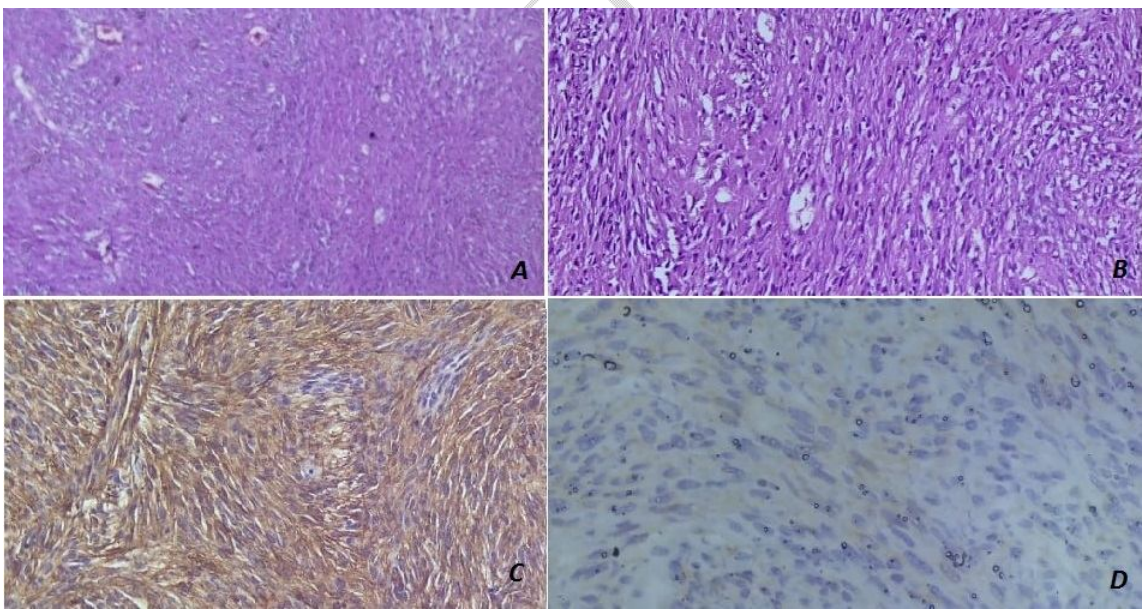

Figure 5. (A) (HE 20X) and (B) (HE 40X) ; A malignant neoplastic lesion is observed, constituting cells of fusiform aspect, of eosinophyl cytoplasm and basophyl nucleus, heterogeneous. The immunohistochimique study show that the tumoral cells are positif to CD34 (C) and weakly positif to CKIT (D) .

Discussion:

Type 1 neurofibromatosis (NF1) is caused by mutation of the NF1 gene, which located on chromosome 17q11.2, The mutations of the NF1 gene are quite heterogeneous and the diagnoses of NF1 are still based largely on clinical criteria(4) . It should be suspected in the presence of a first degree family history of NF 1, multiple cutaneous neurofibromas, café au lait spots, axillary or inguinal freckling, and Lisch nodules(5)

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal (GI) tract, While it is known that gastrointestinal stromal tumors arise from the same lineage as the interstitial cells of Cajal, it is not yet clear if they arise from these cells themselves, or their precursors.(6)

GISTs represent the most common gastrointestinal manifestation of NF1, sporadic GISTs arise predominantly in the stomach, about 90% of Von Recklinghausen's disease Patients have a tendency to develop GISTs wich located in the small intestine usually in the jejunum and characterized by their tendency for multiplicity (5)

Clinical symptoms related to the size and location of tumor, initial clinical manifestations varies, non specific abdominal pain, bleeding from gastrointestinal tract, palpable abdominal mass, perforation (1) in our case the tumor was reveald by an abdominal pain

esophagogastroduodenoscopy remains the most common diagnostic procedure in duodenal GISTs, It allows forceps biopsy, which is not helpful in extraluminal tumor, the most used diagnostic test remains Computed tomography CT scan or MRI (7). In our case Gastrointestinal endoscopy was normal and th CT scan showed an abdominal mass.

Contrast-enhanced computed tomography (CT) is the most used and effective imaging modality of choice for detection of the primary tumor and neoplastic metastases, as well as monitoring of treatment response, Small volume intraperitoneal disease is often detected on diagnostic laparoscopy , Magnetic resonance imaging (MRI) is an alternative and more accurate than CT for detecting liver metastasis, Positron emission tomography (PET) can be used for both initial evaluation and trending the disease's progression that may be useful for detecting unapparent metastases or an otherwise unknown primary site and determining the response to neoadjuvant targeted therapy .(8,9)

complete surgical resection is the only curative treatment for duodenal GISTs. GISTs only require the achievement of R0 resection without violating the capsule of the mass, and lymphadenectomy is not necessary. Laparoscopic surgery has the potential advantage of requiring smaller incisions and less bowel manipulation compared with open surgery , tumor size and location in regard to the papilla of Vater, associated diseases and the patient's performing state should be considered when deciding between segmental duodenectomy and pylorus-preserving duodenopancreatectomy .(5,10)

The revolutionary use of specific, molecularly-targeted therapies, such as imatinib mesylate, a competitive inhibitor of the tyrosine kinases associated with the KIT protein, which inhibits the c-kit receptors reduces the frequency of disease recurrence or metastasis when used as an adjuvant following complete resection. Neoadjuvant treatment with these agents appears to stabilize disease in the majority of patients and may reduce the extent of surgical resection required for subsequent complete tumor removal.(8)

Conclusion

Gastrointestinal stromal tumors associated Von Recklinghausen’s disease has been described to comprise a minority of cases , We report a clinical case of the association of GIST with NF1 in whom surgical resection was performed

References

1. Ozcinar B, Aksakal N, Agcaoglu O, Tukenmez M, Ozemir IA, Barbaros U, et al. Multiple gastrointestinal stromal tumors and pheochromocytoma in a patient with von Recklinghausen’s disease. International Journal of Surgery Case Reports. 2013;4(2):216‑8.

2. Landi B. Tumeurs stromales gastro-intestinales (GIST) : diagnostic et traitements (hors traitements endoscopiques). :12.

3. Agha RA, Fowler AJ, Saeta A, Barai I, Rajmohan S, Orgill DP, et al. The SCARE Statement: Consensus-based surgical case report guidelines. International Journal of Surgery. oct 2016;34:180‑6.

4. Takazawa Y, Sakurai S, Sakuma Y, Ikeda T, Yamaguchi J, Hashizume Y, et al. Gastrointestinal Stromal Tumors of Neurofibromatosis Type I (von Recklinghausen's Disease). American Journal of Surgical Pathology. juin 2005;29(6):755‑63.

5. Hammami A, Hasnaoui B, Guerfala M, Mabrouk MB, Farhat W, Ksiaa M, et al. Gastrointestinal stromal tumor (GIST) inpatient with Von Recklinghausen's disease. La Presse Médicale. avr 2018;47(4):404‑8.

6. Ohtake S, Kobayashi N, Kato S, Kubota K, Endo I, Inayama Y, et al. Duodenal gastrointestinal stromal tumor resembling a pancreatic neuroendocrine tumor in a patient with neurofibromatosis type I (von Recklinghausen's disease): a case report. J Med Case Reports. déc 2010;4(1):302.

7. Cavallaro G, Polistena A, D'Ermo G, Pedullà G, De Toma G. Duodenal gastrointestinal stromal tumors: Review on clinical and surgical aspects. International Journal of Surgery. 2012;10(9):463‑5.

8. Roggin KK. Modern treatment of gastric gastrointestinal stromal tumors. WJG. 2012;18(46):6720.

9. Valsangkar N, Sehdev A, Misra S, Zimmers TA, O'Neil BH, Koniaris LG. Current management of gastrointestinal stromal tumors: Surgery, current biomarkers, mutations, and therapy. Surgery. nov 2015;158(5):1149‑64.

10. Yamamoto R, Kato S, Maru T, Ninomiya R, Ozawa F, Beck Y, et al. The Coexistence of Somatostatinoma and Gastrointestinal Stromal Tumor in the Duodenum of a Patient with Von Recklinghausen's Disease. Intern Med. 2016;6.