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Immuno histological analysis for prevention of misdiagnosis between of gastrointestinal stromal tumor and leiomyosarcoma

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Abstract: Herein, we have reported unusual behavior of clinical presentation of malignant gastrointestinal stromal tumor (GIST). The aim of the present study was to differentiated leiomyosarcoma (LMS) and GIST with respect to clinical presentation and pathologic parameters. A 48-year-old man referred to our Clinic with complaint of abdominal pain and generalized lymphadenopathy. In abdominal CT scan, there were a prominent lesion in left lung and also a mass lesion in left lobe of liver. In immuno histology report, S100 and CD34 were negative but SMA and Desmin were positive. He was treated with chemotherapy for LMS but he didn't respond to this treatment. C-Kit was evaluated in the first pathology sample and was positive. Therefore, he had GIST and after that he was treated only with imatinib 400 mg/day. Because similarity of morphological pathologic of LMS to GIST, type of metastasis, age, sex and markers such as S100, CD34, Desmin and SMA are not sufficient for distinguish between of GIST and LMS and also C-Kit must be checked in patients.
Keywords: CD34, C-Kit, LMS, GIST, Case Report, CD34.

INTRODUCTION

Gastrointestinal stromal tumors (GIST) are the most common mesenchymal tumors of the GI tract [1] and it has been estimated that approximately 10% to 25% of patients present with metastatic disease [2]. Prior to the advent of KIT immuno histo chemistry, the majority of GIST were classified as leiomyosarcoma (LMS) on the basis of histologic criteria. The majority of GI stromal tumors appear to be incompletely differentiated [3]. Accordingly, GIST and LMS have similar gross and microscopic characteristics, making the distinction difficult in the absence of KIT immuno histo chemical studies [4]. The aim of the present study was to differentiated LMS and GIST with respect to clinical presentation and pathologic parameters.

CASE PRESENTATION

A 48-year-old man referred to our Clinic with complaint of abdominal pain and generalized lymphadenopathy. In abdominal CT scan, there were a prominent lesion in left lung and also a mass lesion in left lobe of liver [Figure 1, Figure 2 and Figure 3]. An excisional biopsy was performed and the tumor was diagnosed as a leiomyosarcoma (LMS). Paraffin-embedded material was rechecked for him and was used for immuno histo chemical detection that S100 and CD34 were negative and SMA and Desmin were positive. This case at first time was treated with six courses of chemotherapy regimen "vincristine, adriamycine and cyclophosphamide" that in follow up evaluation didn't respond to this treatment. After that he was treated with three courses of taxoter combined to gemcitabin and because did not also respond to this new regimen too, we decided to reevaluated the first pathology again. In new pathology analysis by another pathology center, C-Kit (CD117) for him was positive and recommended diagnosis became GIST. At now, after 18 months he was treated only with imatinib 400mg/day and he is alive and his lesions in lung and liver decreased in size significantly [Figure 4 and Figure 5]. We decided to continue this therapy for him.

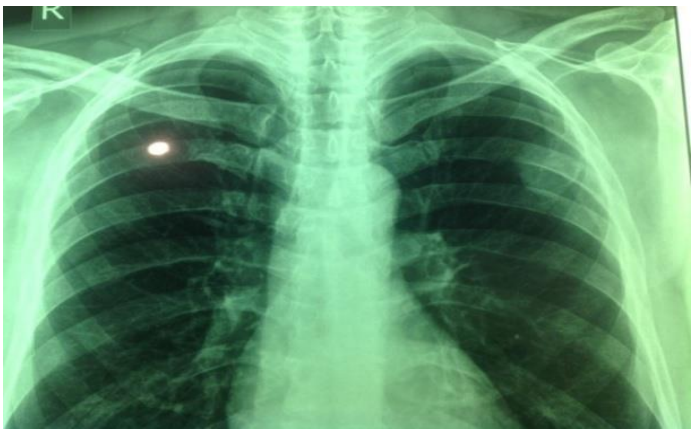

Fig-1: In this chest X-ray in the lateral upper border of left lung can be seen a prominent lesion (before Imatinib)

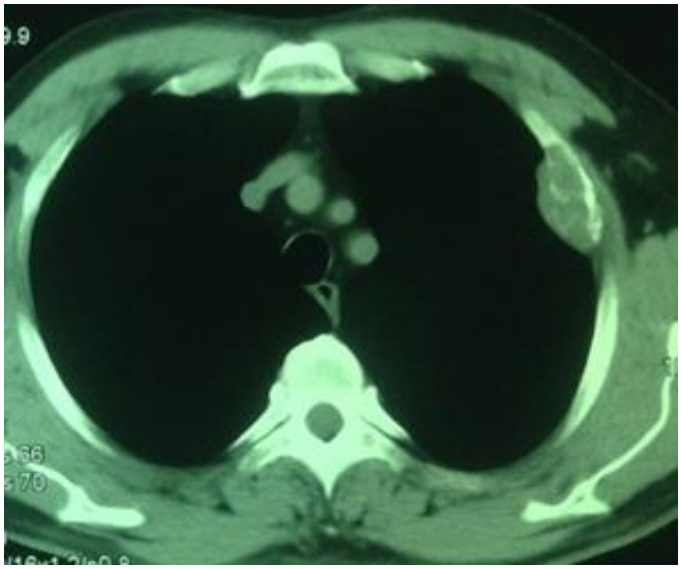

Fig-2: In this view of lung with CT contrast can be seen a lytic lesion in ribs, medial portion of left lung (before Imatinib)

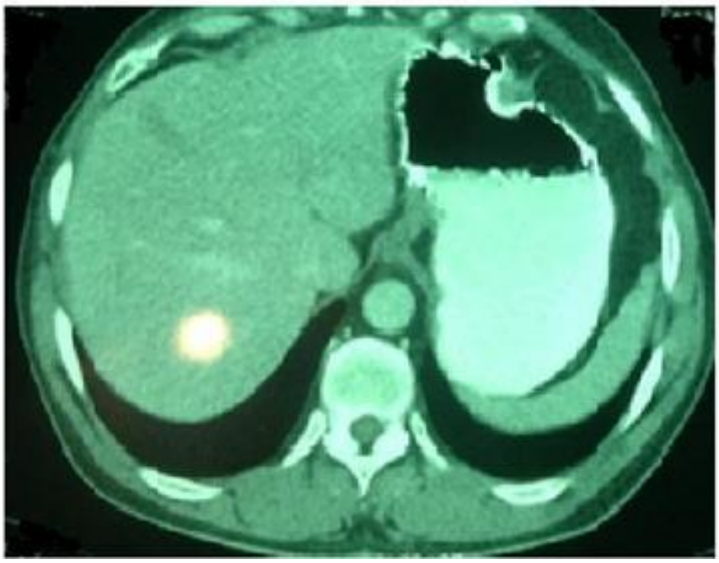

Fig-3: In this abdominal CT scan with contrast a mass lesion can be seen in left lobe of liver (before Imatinib)

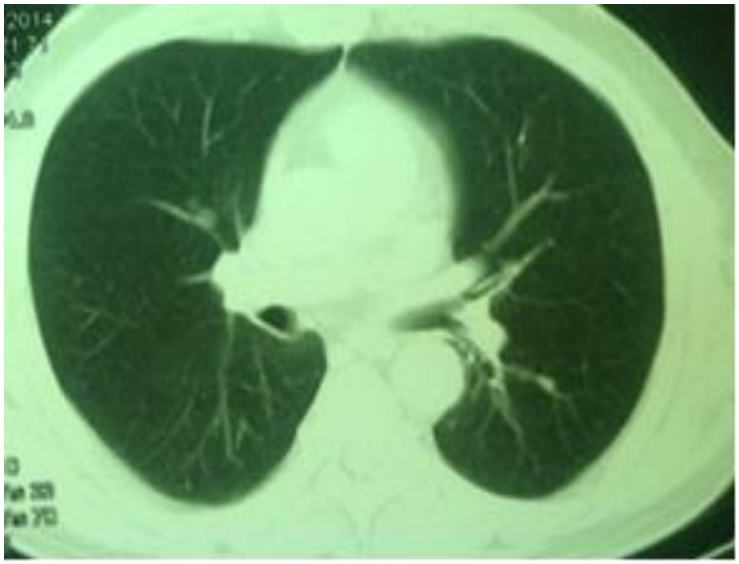

Fig-4: In this view of lung CT scan left, lung lesion decreased in size (after Imatinib)

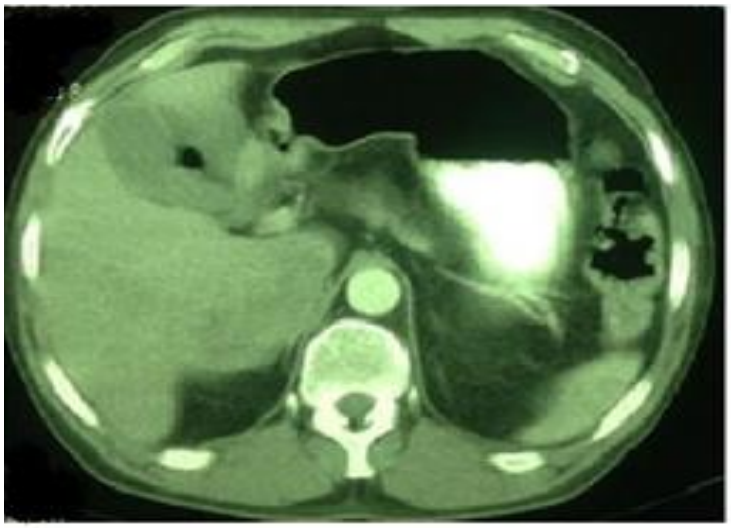

Fig-5: In this view of abdominal contrast CT scan, the multiple lesions in liver decreased in size significantly (after Imatinib)

DISCUSSION

Gastrointestinal stromal tumors (GISTs), though the most common mesenchymal tumors of the GI tract, are rare accounting approximately 1% to 3% of all gastrointestinal tumors and can occur anywhere in the GI tract [5]. GIST occurs marginally frequent in males as compared to females, both in the fifth and sixth decades of life [5, 6]. In a retrospective study of 200 GIST cases, typical clinical manifestations of malignancy included liver metastases and/or dissemination within the abdominal cavity. Lymph node involvement and spread to the lungs or other extra-abdominal sites was unusual [7] and the GISTs occurred predominantly in adults older than 50 years of age (median, 67 years), and most were histologically malignant [8]. Comparison of GIST and LMS showed that GIST cases have Desmin (positive), C-Kit (CD117) (positive), 60-70% of cases have CD34 (positive) and SMA may be positive in 30–40% of GIST and in nearly all LMS [3].

Like GIST, LMS rarely spreads to regional lymph nodes but this may occur in up to 14.4% of patients [3]. A study [6] among 74 GISTs showed that all 74 cases of GIST were positive for C-Kit and 54 GISTs were also positive for CD34 (72.9%), 25 cases positive for SMA, 5 cases positive for S100 and 5 cases positive for Desmin. LMS predominantly metastasized to the lungs, whereas GIST tended to spread to the liver and the abdominal cavity and C-Kit was expressed in

5% of the LMS patients and in 68% of the GIST patients [4]. Cellular markers in our case with GIST such as S100, CD34 were negative but SMA, Desmin and C-Kit were positive and also the patient had metastasis to lung and liver and was 48 years.

CONCLUSION

Because similarity of morphological pathologic of LMS to GIST, type of metastasis, age, sex and markers such as S100, CD34, Desmin and SMA are not sufficient for distinguish between of GIST and LMS and also C-Kit must be checked in patients.

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