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LEIOMYOSARCOMA: A CASE REPORT ON THE PREOPERATIVE DIAGNOSTIC CRITERIA

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ABSTRACT: Leiomyosarcoma is a rare kind of cancer that affects the mesodermal tissue, and the prognosis associated with it is virtually never good. It is anticipated that there would be between 0.5 and 7 instances per 100,000 women per year. This range of cases is predicted. (6.12) It might be challenging to determine the cause of the ailment. Clinical and radiological characteristics of a benign leiomyoma and a possibly malignant leiomyosarcoma are quite like one another. This is true for both types of leiomyomas. Nevertheless, magnetic resonance imaging is still the method of choice when it comes to diagnosing and evaluating this condition. The prognosis of this problem is greatly deteriorated since preoperative diagnosis makes it possible to prevent conservative surgical treatment, myomectomy, and morcellation of leiomyoma. These three procedures are all intended to remove the leiomyoma tumour. The only approach that can offer a definite diagnosis is called histology. Based on our patient's case, we examine the difficulties in making a diagnosis, as well as the clinical and radiological criteria that must be met in order to arrive at a preoperative diagnosis. Additionally, we conduct a review of the pertinent past research in the area.

INTRODUCTION:

Leiomyosarcoma is the kind of uterine sarcoma that is diagnosed in the majority of patients. The annual incidence might vary anywhere from 0.5 and 7 cases per 100,000 females. Because of the existence of this illness, the prognosis is not optimistic at all. The five-year survival rate may vary anywhere from 25% to 76% overall; however, if the cancer has spread to other

parts of the body, it only varies from 10% to 15%. [1-3] There are two different kinds of leiomyomas: leiomyoma and leiomyosarcoma. It may be quite challenging to tell the difference between the two. The magnetic resonance imaging (MRI) test is, as it has been for many years, the most reliable tool for diagnosing leiomyosarcoma. Following surgical

removal of the tissue, conclusive histology offers the opportunity to establish a correct diagnosis.

CLINICAL CASE: A nulliparous woman of 43 years of age who has never been married and has no history of either illness or surgery in her past. Referrals are made in situations when the patient complains of increased abdominal volume along with a sensation of heaviness and there are no issues related to the menstrual cycle. An examination of the abdomen reveals the presence of a tumour in the area of the abdominopelvic region that extends all the way to the umbilicus. The lady said that she had never been sexually active in her life, therefore the doctor decided against doing the vaginal exam on her. The patient was found to have a polomyomatous uterus after an ultrasound was performed. The largest mass was type 3, measuring 12 centimetres by 10 centimetres, and it had poorly limited boundaries and heterogeneous echostructure. Additionally, it contained anechoic cystic areas (figure 1). In view of the fact that this uterine mass seemed concerning, it was important to have an MRI scan, which finally led to the preoperative diagnosis of leiomyosarcoma. This diagnosis was made prior to the patient undergoing surgery (figures 2,3).



Fig 1: large intrauterine mass, cystic areas with irregular walls.

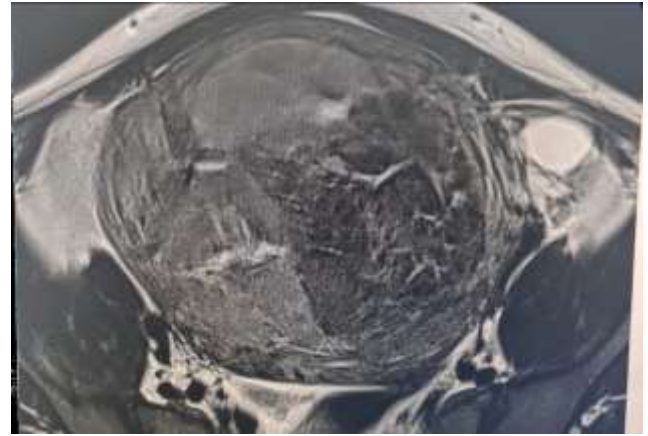


Fig 2: T2-weighted sequence: heterogeneously hyperintense.

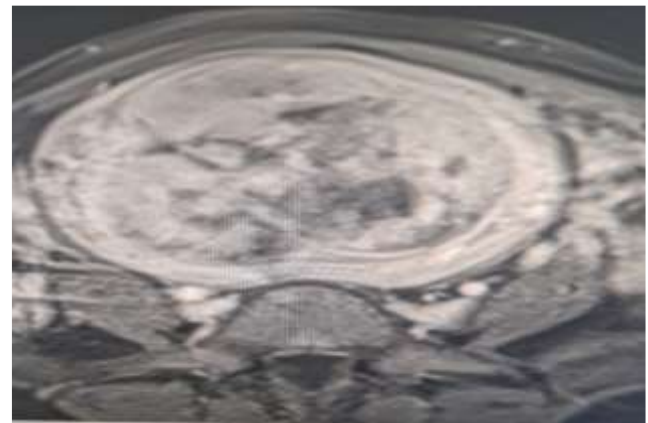


Fig 3: Early Heterogeneous Enhancement on Contrast-Enhancement MRI.

The patient had treatments consisting of a total hysterectomy as well as bilateral adnexectomy throughout their hospital stay. The histological analysis made it feasible to establish the diagnosis of leiomyosarcoma: the tumour measured 11 centimetres in diameter and exhibited cytonuclear atypia; the number of mitoses was estimated to be 15 per 10 fields. It is connected to vast areas of necrosis on the surface of the tumour, which makes up around 30 percent of the total.

DISCUSSION:

Leiomyosarcoma poses a diagnosing problem. The symptoms of this condition are quite similar to those of a typical leiomyoma, making it difficult to distinguish between the two. The clinical manifestations of these illnesses are connected to one another and have a lot in common with one another.

It might be a difficulty with the menstrual cycle, a sense of heaviness or pain in the pelvic, the inability to conceive a child, urinary symptoms like dysuria, or digestive difficulties like constipation. All of these symptoms could be related to the same underlying issue. However, there are three clinical criteria that must alert us to the risk of malignant pathology even if they can also be found in the case of leiomyoma: perimenopause (the peak incidence of leiomyosarcoma), a rapidly growing leiomyoma, and the presence of multiple leiomyomas in close proximity to one another. If any of these conditions are present, we must be alerted to the possibility of malignant pathology.

When analysing uterine masses, ultrasound is the primary diagnostic method that is used; nevertheless, there are some criteria that need to be fulfilled in order to suspect the presence of leiomyosarcoma. This is the case despite the fact that leiomyosarcoma may also develop as a consequence of leiomyoma, benign myxoid degeneration, hyaline, or aseptic necrobiosis. Hyaline or aseptic necrobiosis is a kind of aseptic necrosis. The characteristics of this mass include a large population, ill-defined boundaries of the mass, heterogeneous echostructure, the presence of anechoic cysts, and enhanced vascularization. The following describes each of these criteria:

After first examining MRI as a first-line test, clinical and ultrasound indicators of malignancy suggest that it should be investigated as a second-line diagnostic option instead. This comes after the first consideration of MRI as a first-line test. The MRI may be used to identify necrosis if specific criteria are present, such as poorly confined margins, T2 hypersignal, heterogeneous early enhancement, and a lack of central enhancement. These requirements call for future investigation using a diffusion-weighted imaging (DWI b1000) that presents a hypersignal with a low ADC map diffusion coefficient. If malignancy is shown to be present, this may provide evidence that it does really exist.

Tong et al. provided a description of the MRI features of 10 leiomyosarcomas that have been validated histologically in the past. Two distinguishing criteria allowed for the identification of all ten tumours: the uneven borders of the tumours and a T2 hypersignal. Only two of them did not have what seemed to be radiological signs of necrosis, but the other seven of them did. [10]

According to the findings that were reported by Thomassin-negara et al., a combination of analysing the T2 signal, the signal in DWI b1000, and the ADC map is able to differentiate between benign and malignant tumours of the myometrium 92.4% of the time. This was determined by looking at the data. [6] Histology is the only kind of examination that can be performed to establish a diagnosis of leiomyosarcoma. This is because there is no other test that can detect this type of cancer. Histological indicators of malignancy include hypercellularity, cytological and nuclear atypia, a high mitotic index of more than 15 mitoses/10 fields, and tumour necrosis. Other indicators include a high mitotic index and a large number of mitoses. Malignancy is characterised by hypercellularity, which is one of the most prevalent histological markers. [2]

CONCLUSION:

Leiomyosarcoma is difficult to diagnose. Clinical and ultrasonographic criteria are used in order to provide a basis for assessing the likelihood that a leiomyoma may progress into cancer in the future. The magnetic resonance imaging (MRI) scan is the diagnostic instrument that enables the preoperative diagnosis to be performed. The only item that has the potential to give irrefutable proof of a diagnosis of leiomyosarcoma is the tissue's histology.

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