Case 17009

Eurorad

A case of mitotically active cellular fibroma

Published on 27.10.2020

DOI: 10.35100/eurorad/case.17009
ISSN: 1563-4086
Section: Genital (female) imaging
Area of Interest: Genital / Reproductive system female
Imaging Technique: MR
Special Focus: Tissue characterisation Case Type:
Clinical Cases
Authors: Dr.Vasanthapriya Janarthanan, Dr. Anand.A.M., Dr. Elampridhi Padmanabhan, Dr. Kulasekaran Nadhamuni, Dr. Umamageswari Amirthalingam.
Patient: 32 years, female

Clinical History:

A 32-year-old, P2 L2, sterilised female presented with complaints of irregular menstrual cycles since 1 year. Per abdomen shows a palpable mass arising from the pelvis of about 28 weeks, with well-defined lower border. On investigation (Cancer Antigen) CA125 -8.9 (N-Normal); (Carcinoembryonic antigen) CEA-4.71(increased); (Lactate dehydrogenase) LDH-218 (N).

Imaging Findings:

On ultrasound, a well-defined heteroechoic solid abdomino pelvic lesion of size approximately 16.8 x11.4 x17.3cm noted with cystic degeneration and no significant vascularity. Left ovary was not separately visualized.

Contrast enhanced magnetic resonance imaging (MRI) showed a large well defined T1 hypointense (FIGURE 1), T2 hyperintense (FIGURE 2) and heterogeneously enhancing abdominopelvic lesion (FIGURE 3) predominantly solid with few necrotic foci approximately measuring 19.2 x 14.1 x 9.2cm seen, likely to be left ovarian origin as it was not separately visualized (FIGURE 4).

Then the patient was planned for surgery with intraoperative frozen section which was suggestive of ovarian fibroma with unknown malignant potential. Hence proceeded with hysterectomy with bilateral salpingo opherectomy.

Intra operatively, a 18 x 12cm left ovarian solid tumor was found (FIGURE 5a,b).

Postoperative histopathological examination confirmed the diagnosis as ovarian cellular fibroma with mildly enlarged nuclei and occasional mitotic figures (4/10 high power field HPF) (FIGURE 6,7). No evidence of necrosis.

Discussion:

Fibroma is the most common benign ovarian tumour, approximately comprising 4 % of all ovarian neoplasms. It affects any age group of patients who usually presents with abdominal mass and irregular menstrual cycles. The cellular fibroma is usually a solid, unilateral tumor of uncertain malignant potential which depends on cellularity, mitotic activity and nuclear atypia [1]. It was classified into benign fibroma and malignant fibrosarcoma previously. [2]. In some studies, patients with ovarian fibroma were found to have elevated tumour marker i.e. CA-125. Surgical removal of only solid ovarian tumours is recommended because of the low probability of malignancy.

Ovarian fibroma is associated with Gorlin's syndrome (naevoid basal cell carcinoma) and Meig's syndrome (hydrothorax, ascites)[3].

Radiologically, ultrasound is the initial modality of choice in which it appears as well defined, mostly unilateral solid hypoechoic mass arising from the ovary. Calcification is very rare.

Magnetic resonance imaging (MRI), fibromas usually appear homogeneously hypointense on T1W images, hyperintense on T2W images. Sometimes they appear heterogenous due to cystic degeneration as is seen in this case. As it is of an ovarian origin a band of T2 hypointensity separating the tumour from the uterus will be seen on all imaging planes which is a characteristic feature. Post contrast they show heterogonous enhancement [3].

Histopathological examination helps to categorize fibrous tumours based on the degree of mitotic activity based on which management varies as shown in below table [1,4].

Mitotic figures	Nuclear atypia	Category	Treatment
< 3 per 10 hpf	No	Cellular fibroma	Removal of tumour alone
≥ 4 per 10 hpfs	No	Mitotically active cellular fibroma	Transabdominal hystrectomy with bilateral saphingoopherectomy (tah + bso)
≥ 4 per 10 hpfs	Severe	Fibrosarcoma	(tah + bso) + post -surgical adjuvant chemo/ radiotherapy

Irving et al [5], conducted study among 75 cases of cellular fibromas of the ovary and first derived the term as "mitotic active cellular fibroma (MACF)" with ?4 mitosis/10HPF.

Yamada et al [6], concluded in their study, that ovarian fibromas are misdiagnosed as uterine myomas so intraoperative histopathological examination is necessary to rule out the cellular nature of the fibroma.

Differential Diagnosis List: Mitotically active ovarian cellular fibroma., Large pedunculated subserosal uterine leiomyoma, Thecoma and fibrothecoma

Final Diagnosis: Mitotically active ovarian cellular fibroma.

References:

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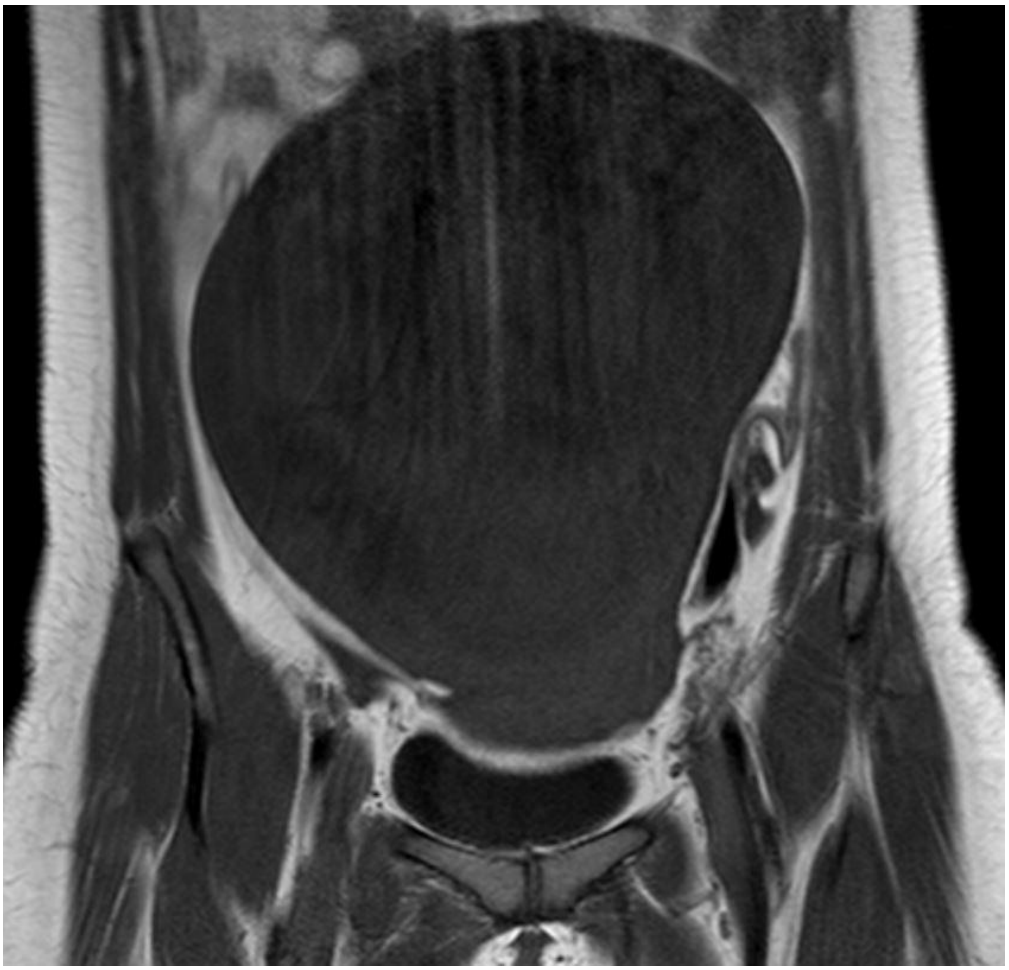
Figure 1

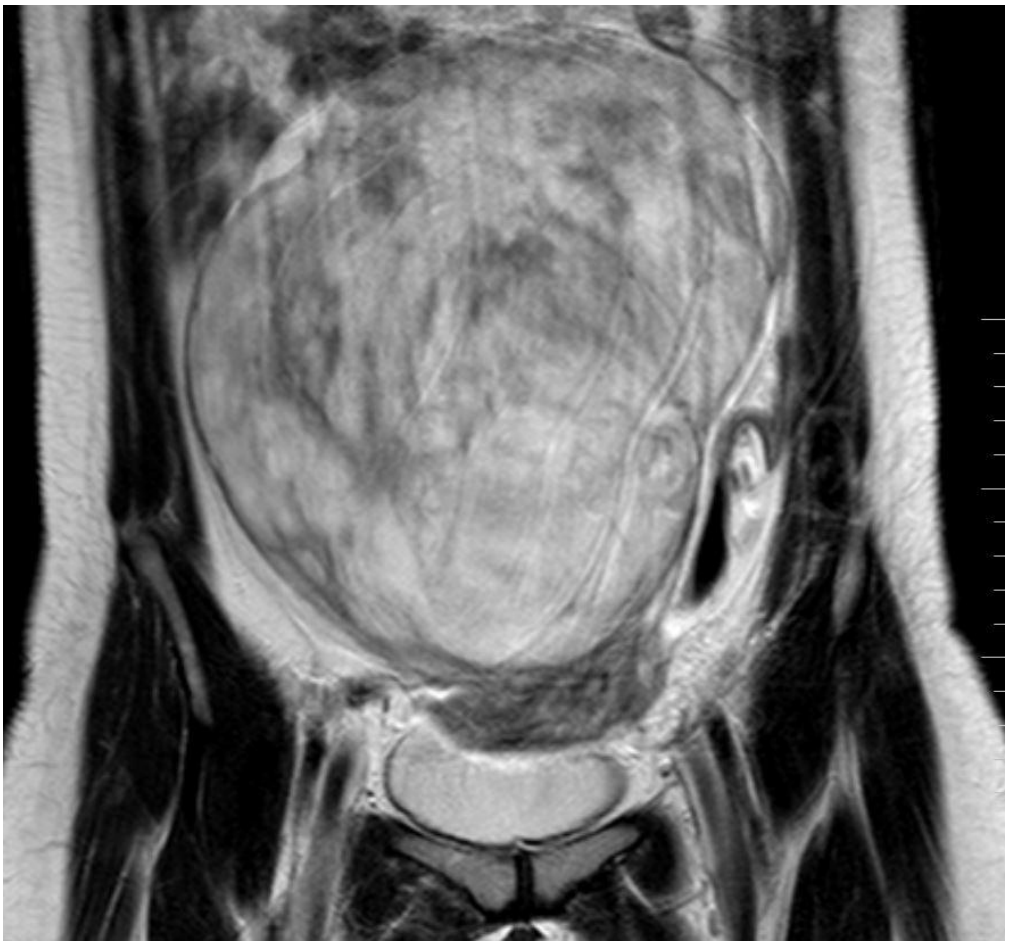
a



Description: T1W Magnetic resonance imaging (MRI) image shows a large well defined hypointense abdomino-pelvic lesion. **Origin:** ©Department of Radiodiagnosis, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.

Figure 2

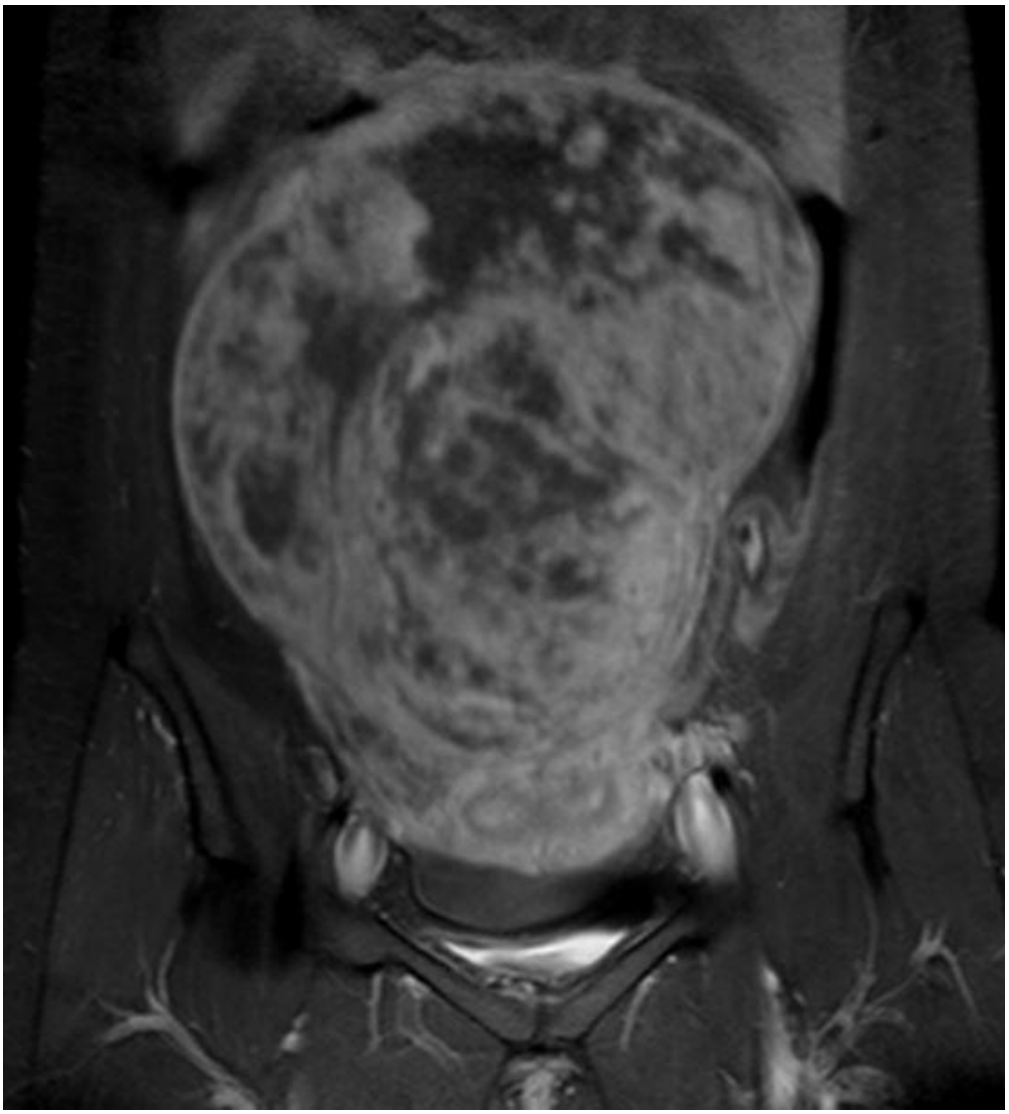
a



Description: T2W MRI image shows a large well defined hyperintense abdomino-pelvic lesion. **Origin:** ©Department of Radiodiagnosis, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.

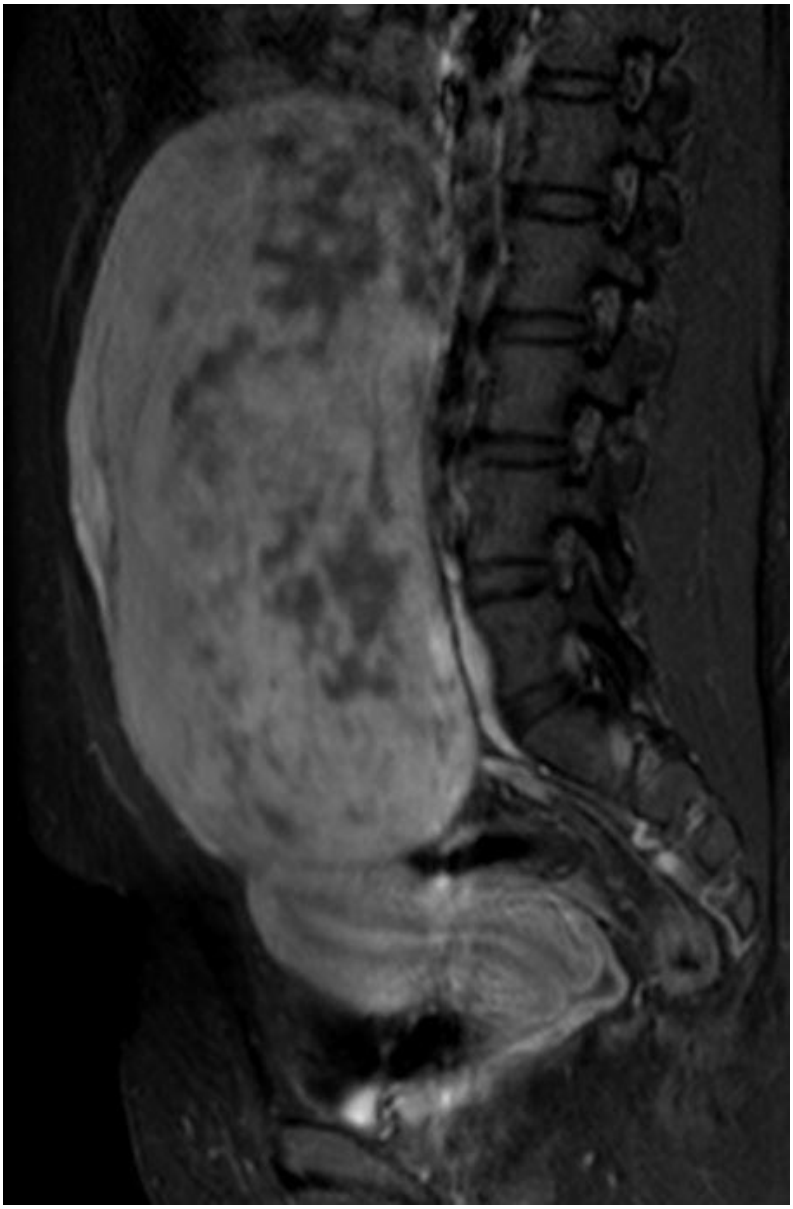
Figure 3

a



Description: Contrast enhanced MRI pelvis shows a large well defined heterogenously enhancing abdominopelvic lesion predominantly solid with few necrotic foci. **Origin:** ©Department of Radiodiagnosis, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.

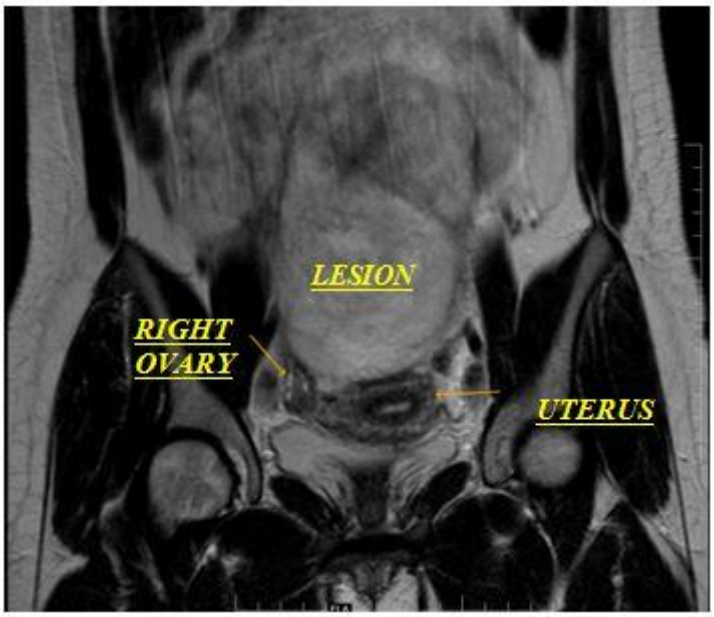
b



Description: Contrast enhanced MRI pelvis shows a large well defined heterogenously enhancing abdominopelvic lesion predominantly solid with few necrotic foci. **Origin:** ©Department of Radiodiagnosis, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.

Figure 4

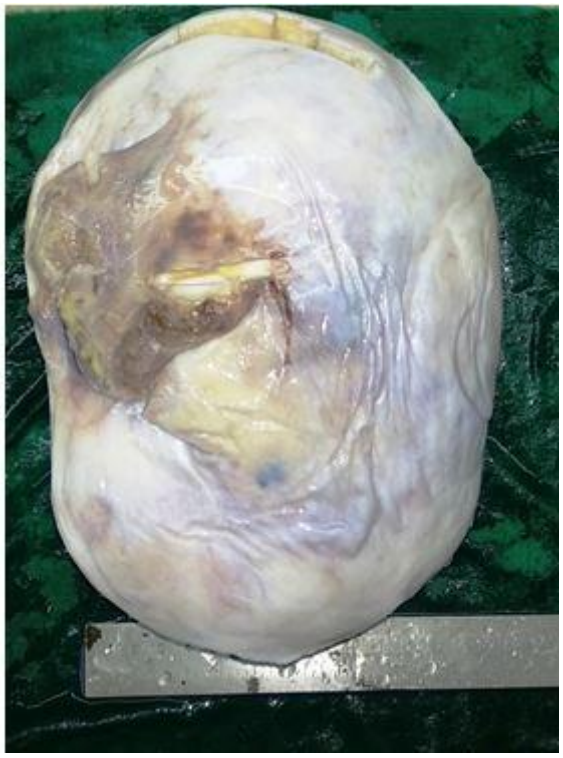
a



Description: Coronal T2W image shows right ovary, uterus and lesion arising from left ovary as it is not separately visualized. **Origin:** ©Department of Radiodiagnosis, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.

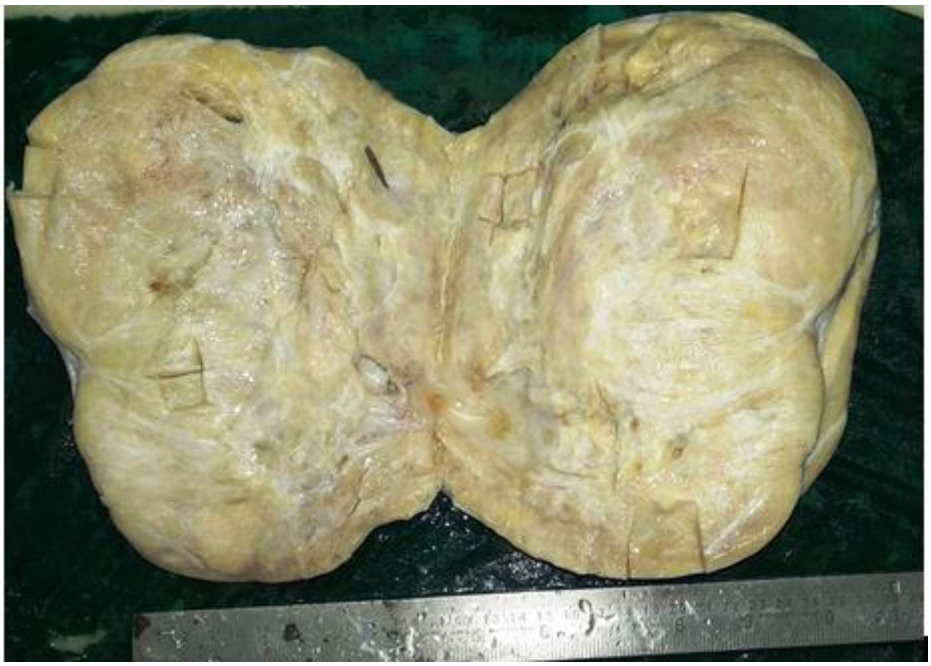
Figure 5

a



Description: Gross specimen of post-operative ovarian mass (a) with cut section (b) shows with firm grey white with focal yellowish areas. **Origin:** ©Department of Pathology, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.

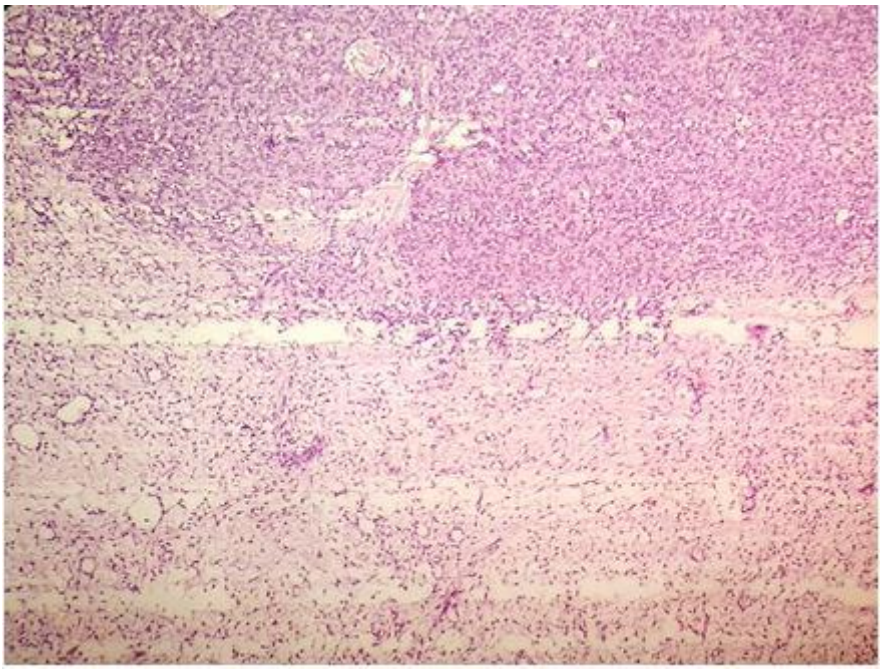
b



Description: Gross specimen of post-operative ovarian mass (a) with cut section (b) shows with firm grey white with focal yellowish areas. **Origin:** ©Department of Pathology, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.

Figure 6

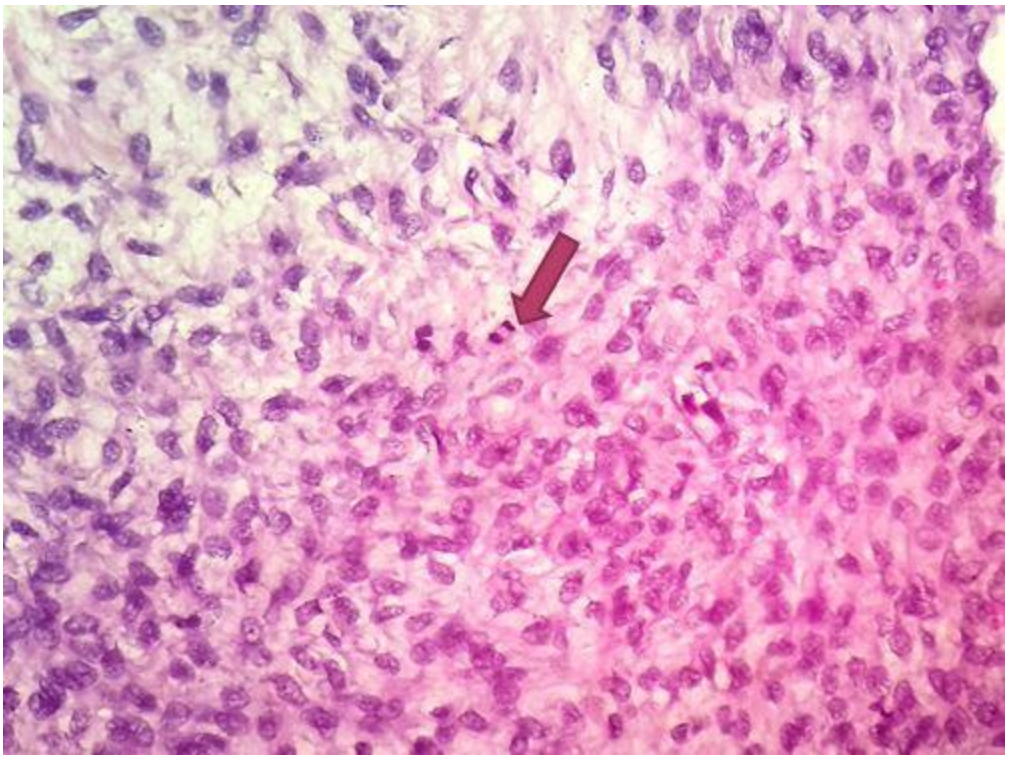
a



Description: Histopathological microscopic image of ovarian mass showed focal areas of compact hypercellular region. **Origin:** ©Department of Pathology, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.

Figure 7

a



Description: Histopathological microscopic image shows mitotic figures of >4 per 10 HPF with no severe nuclear atypia (Arrow – Mitotic figure) **Origin:** ©Department of Pathology, Sri Manakula Vinayagar Medical College and Hospital,Puducherry, India 2019.