Lipoma , Liposarcoma , Lipo-Dystrophy

Presenter :
Dr. K. Jaswanth Chowdary
1st Year Post-Graduate

Moderator :
Dr. K. Siva Sankara Rao
Professor & HOD
Department of General Surgery

Introduction

- Adipose tissue disorders encompass benign, malignant, and dystrophic conditions affecting fat metabolism.

- This presentation covers:
  - Lipoma (benign tumor of adipocytes)
  - Liposarcoma (malignant adipocytic tumor)
  - Lipodystrophy (fat loss syndromes)

Lipoma

Definition :

- Common benign tumor composed of mature adipocytes enclosed in a thin fibrous capsule.
- Represents about 16–20% of all benign soft tissue tumors.
- May be multiple in familial lipomatosis or secondary to antiretroviral therapy.

Pathogenesis and Genetics

- HMGA2/LPP gene translocation (12q13–15) linked to tumorigenesis.
- Causes overexpression of lipoprotein lipase variants leads to adipocyte proliferation without atypia.

Liposarcoma

- Malignant tumor of adipose tissue with varying differentiation grades.
- Accounts for 20% of soft tissue sarcomas.
- Common sites: thigh, retroperitoneum, upper arm.

Liposarcoma – Classification

1. Well-differentiated (WDLPS) – low-grade, locally aggressive
2. Dedifferentiated (DDLPS) – higher grade, prone to recurrence
3. Myxoid/Round cell LS – intermediate grade
4. Pleomorphic LS – highly malignant.
5. Mixed Myxoid + Pleomorphic

Clinical Features

- Deep-seated, painless, progressively enlarging mass.
- Retroperitoneal tumors may cause pressure symptoms.
- Metastatic spread mainly to lungs (esp. pleomorphic subtype).

PATHOGENESIS

- Oncogenes : MDM2 AND CDK4 Amplification is seen leading to uncontrolled proliferation of fat cells - usually seen in Well Differentiated and Dedifferentiated types.
- Gene fusion of DDIT3 & FUS genes present in Myxoid type and blocks adipocyte differentiation.

Lipodystrophy

- Lipodystrophy (lipoatrophy) is a localised or generalised loss of fatty tissue, which can be primary or secondary.
- Heterogeneous conditions characterized by abnormal absence or redistribution of adipose tissue.
- Can be congenital or acquired, generalized or partial.

Lipodystrophy

- It can be a complication of long-term administration of insulin, following treatment of human immunodeficiency virus (HIV) with protease inhibitors or in transplant recipients.

Classification

1. Congenital Generalized (Berardinelli–Seip)
2. Familial Partial (Dunnigan type)
3. Acquired Generalized (Lawrence syndrome)
4. Acquired Partial (Barraquer–Simons).

Clinical Features

- Loss of subcutaneous fat, muscular hypertrophy, acanthosis nigricans, insulin resistance.
- Metabolic complications: diabetes, dyslipidemia, hepatic steatosis.
- In partial forms, loss is regional with paradoxical fat accumulation elsewhere.

Pathogenesis

- Genetic mutations affecting lipid metabolism and adipogenesis (e.g., LMNA, AGPAT2, PLIN1).
- Autoimmune or drug-induced in acquired forms (e.g., HIV therapy)

Management

- Focus on metabolic control: diet, exercise, insulin sensitizers (metformin, thiazolidinediones).
- Leptin analog (metreleptin) in generalized forms.
- Cosmetic correction (fat grafting) in select cases.
- It can be treated in selected cases by autologous fat grafting, injections of poly-L-lactic acid and free tissue transfer.

Differential Diagnosis

Feature	Lipoma	Liposarcoma	Lipodystrophy
Nature	Benign Tumour	Malignant Tumour	Metabolic Disorder
Cell Type	Mature Adipocytes	Atypical Lipoblasts	Fat Loss / Redistribution
Growth	Slow, Painless	Rapid, Invasive	Variable , Progressive
Treatment	Excision	Wide Excision +/- Adjuvant Therapy	Metabolic and Hormone Therapy

Case Scenarios

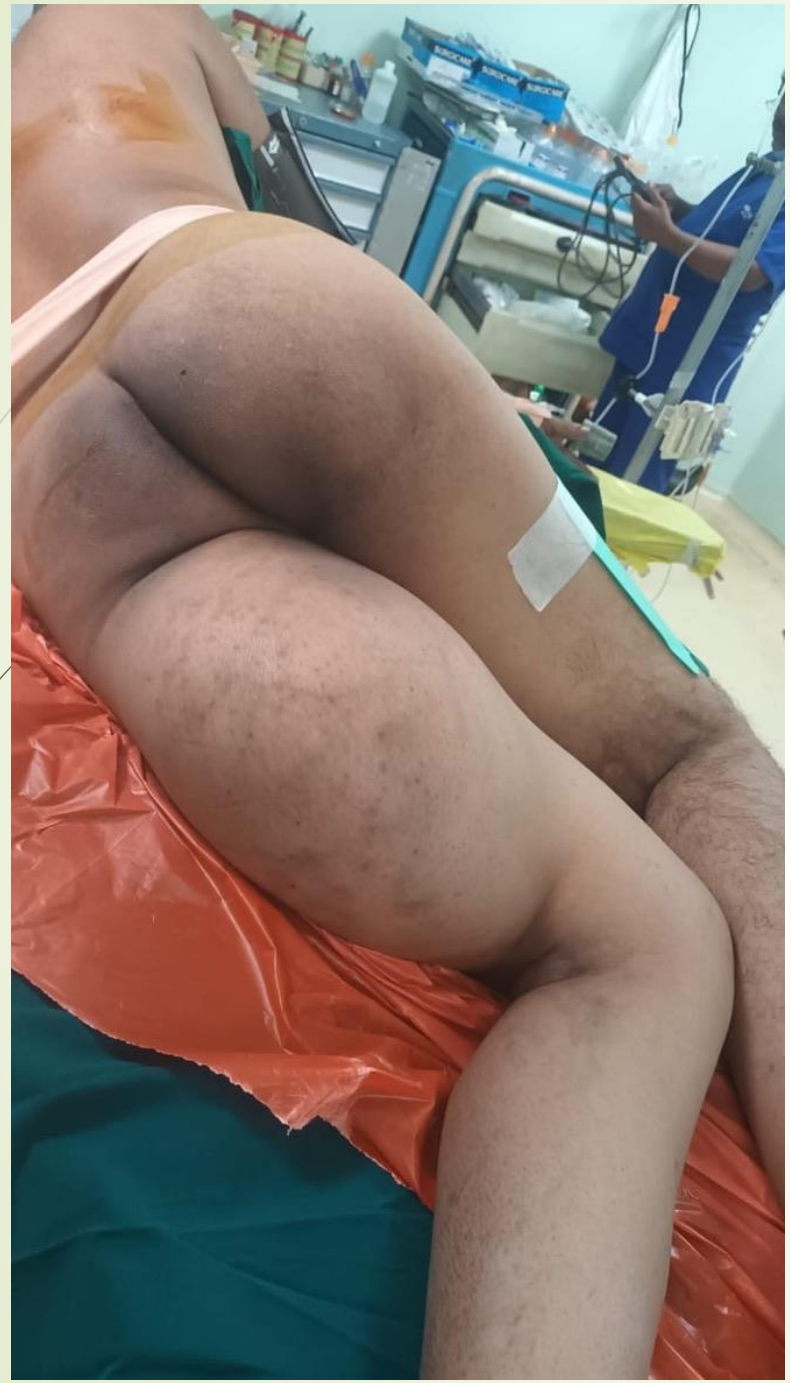
Case-1: LIPOMA-1

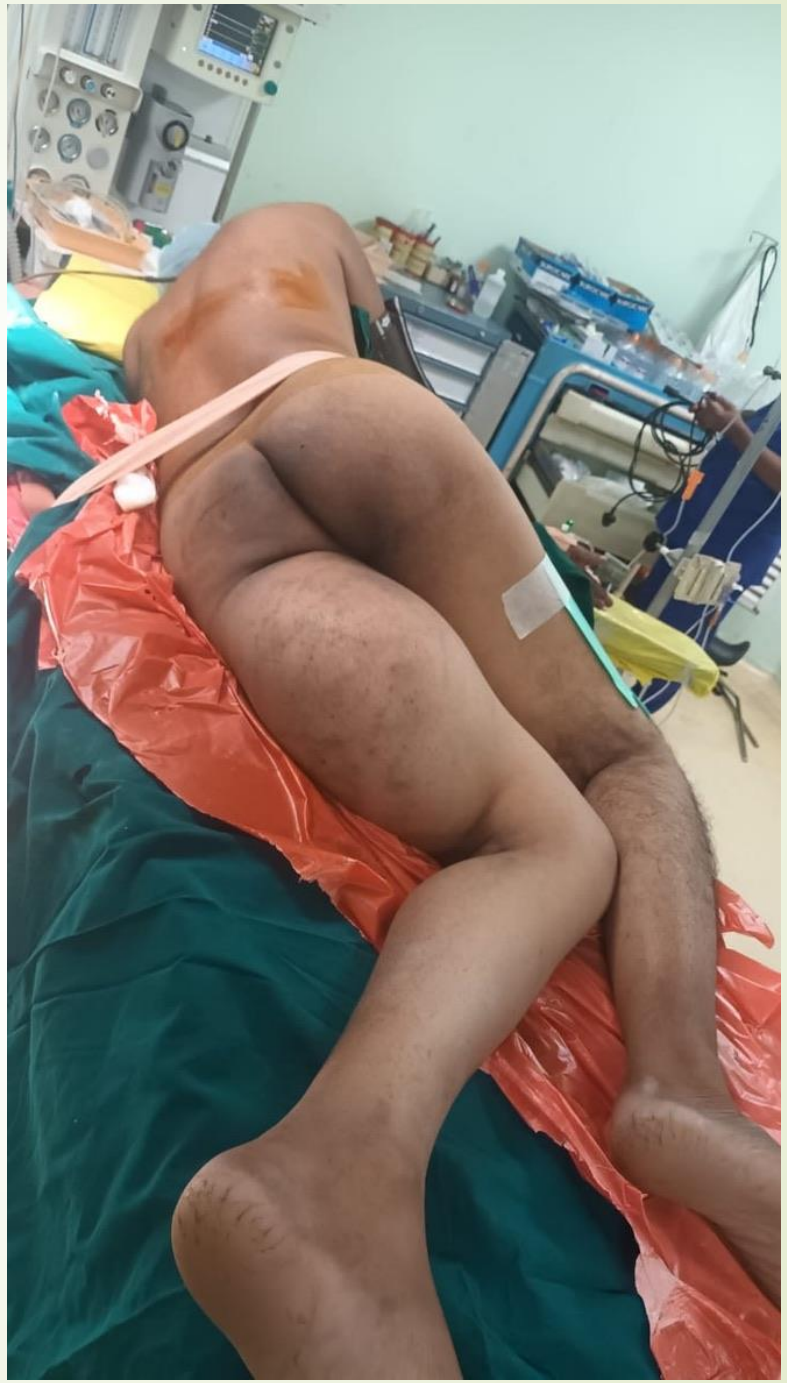
- Presenting Complaints :
- A 68 year old male patient came with the C/O swelling over posterior aspect of left thigh since 4 years.
- Pt had C/O difficulty in sitting and dragging type of pain
- Swelling of size 30 x 15 x 10cm

- Past History :
- Patient has no comorbidities
- Not a K/C/O Alcohol / Smoking

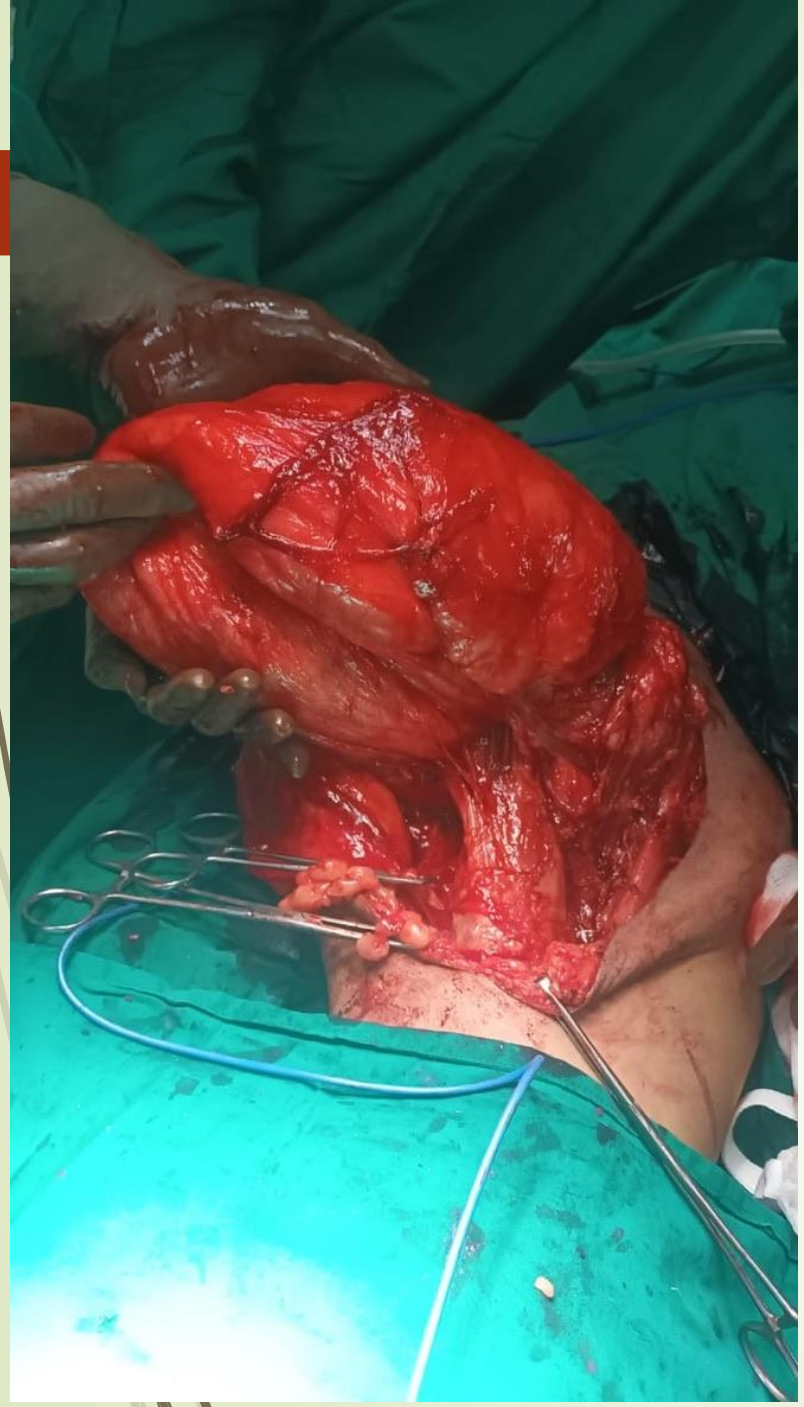
INVESTIGATIONS - CT

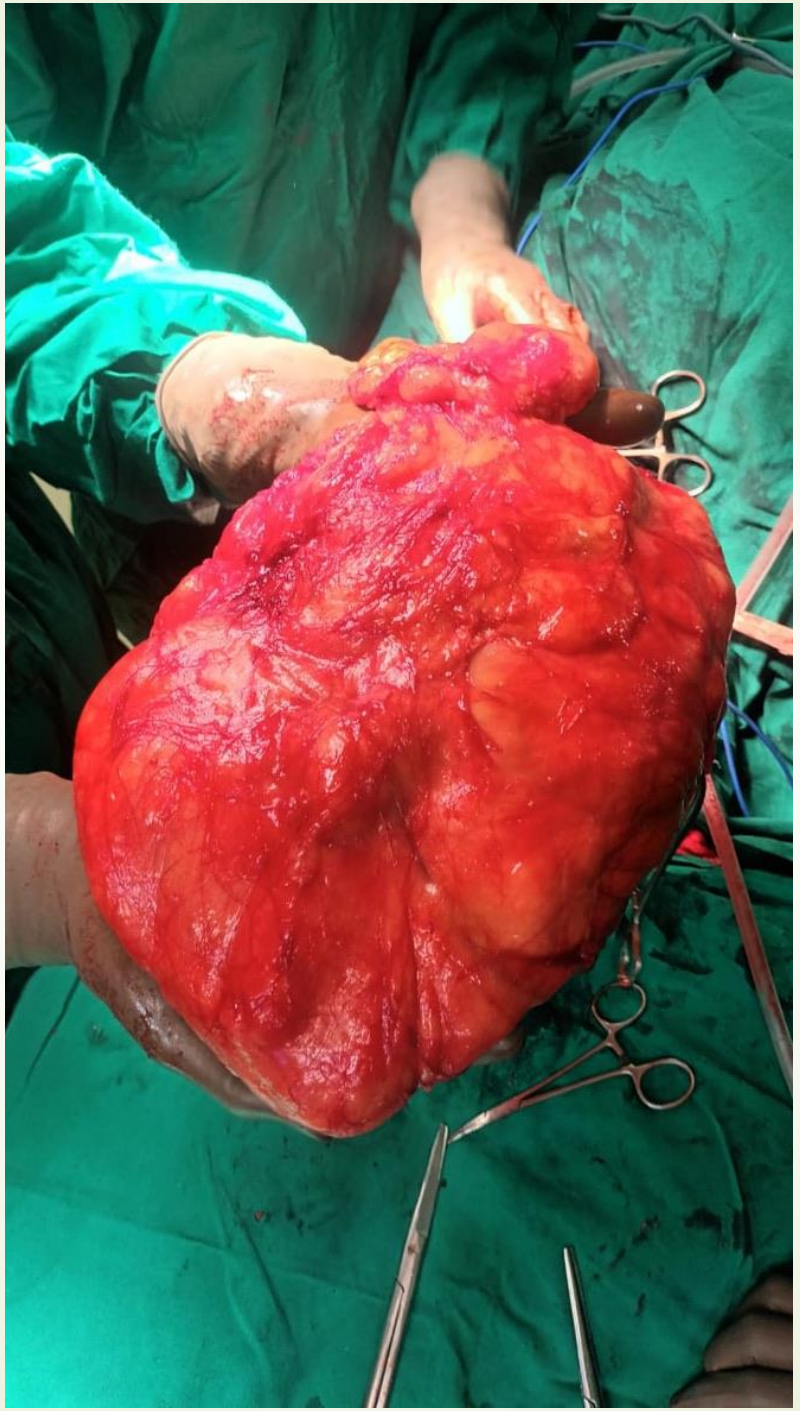
- **IMPRESSION** : Well defined encapsulated intramuscular fatty mass ; suggestive of Lipoma





- Swelling is extended into the muscle planes , hence surgery was difficult.
- Excision of swelling was done by safe-guarding the sciatic nerve.





HPE

- Section studied shows mature adipocytes ; no evidence of malignancy
- Opinion : Lipoma

- Patient was discharged on POD-10
- Post-operative recovery was good.
- Patient had no C/O Post-operative complications.

Case-2 : LIPOMA

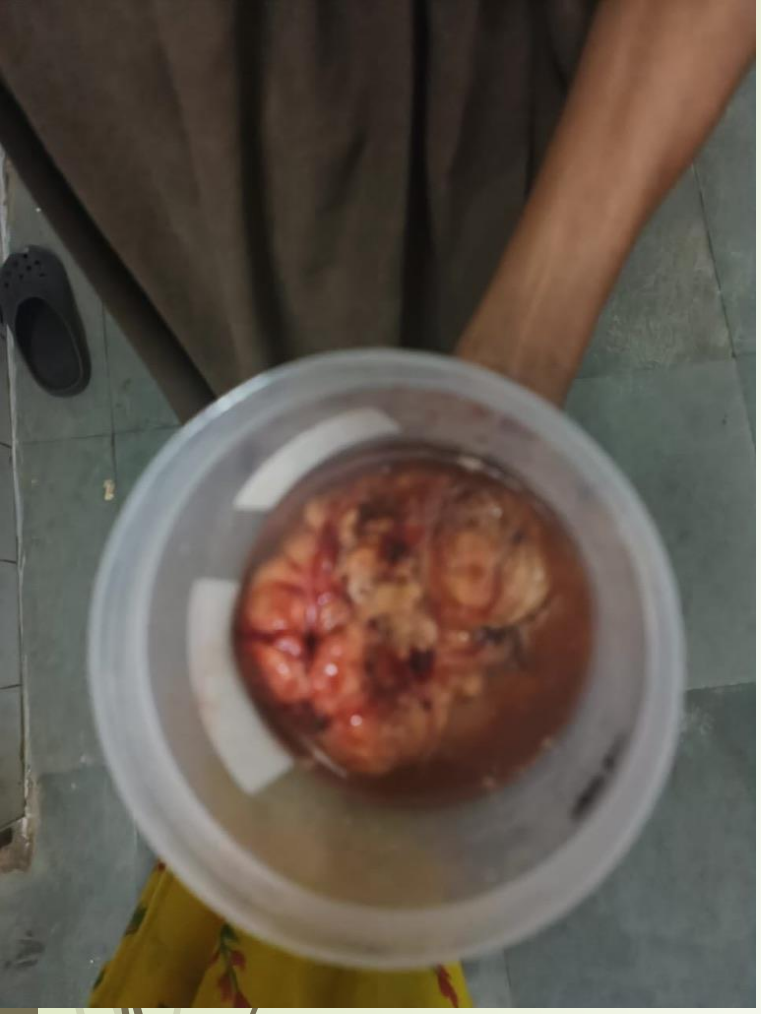
- Presenting Complaints :
- A 38 year old male patient came with the C/O swelling over anterior aspect of upper 1/3rd of left thigh since 1 year, not associated with pain or discharge.
- Swelling of size 15 x 7 x 10cm.

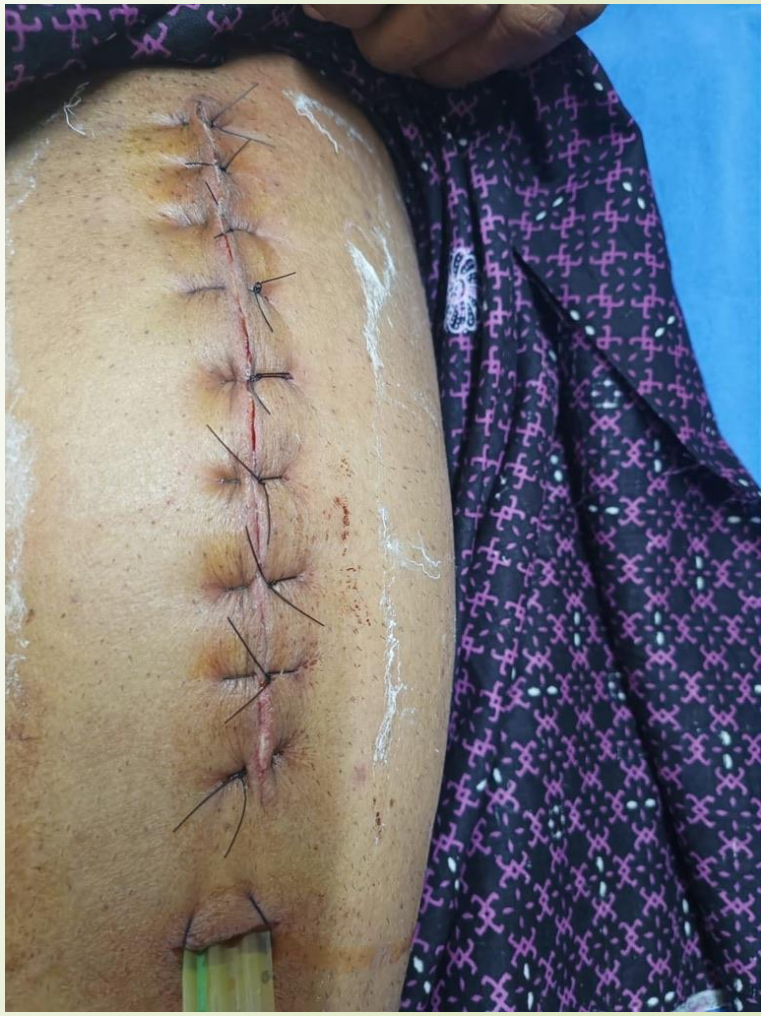
- Past History :
- Patient is a K/C/O T2DM since 5 years ; on medication.
- K/C/O smoking and alcohol since 3 years.

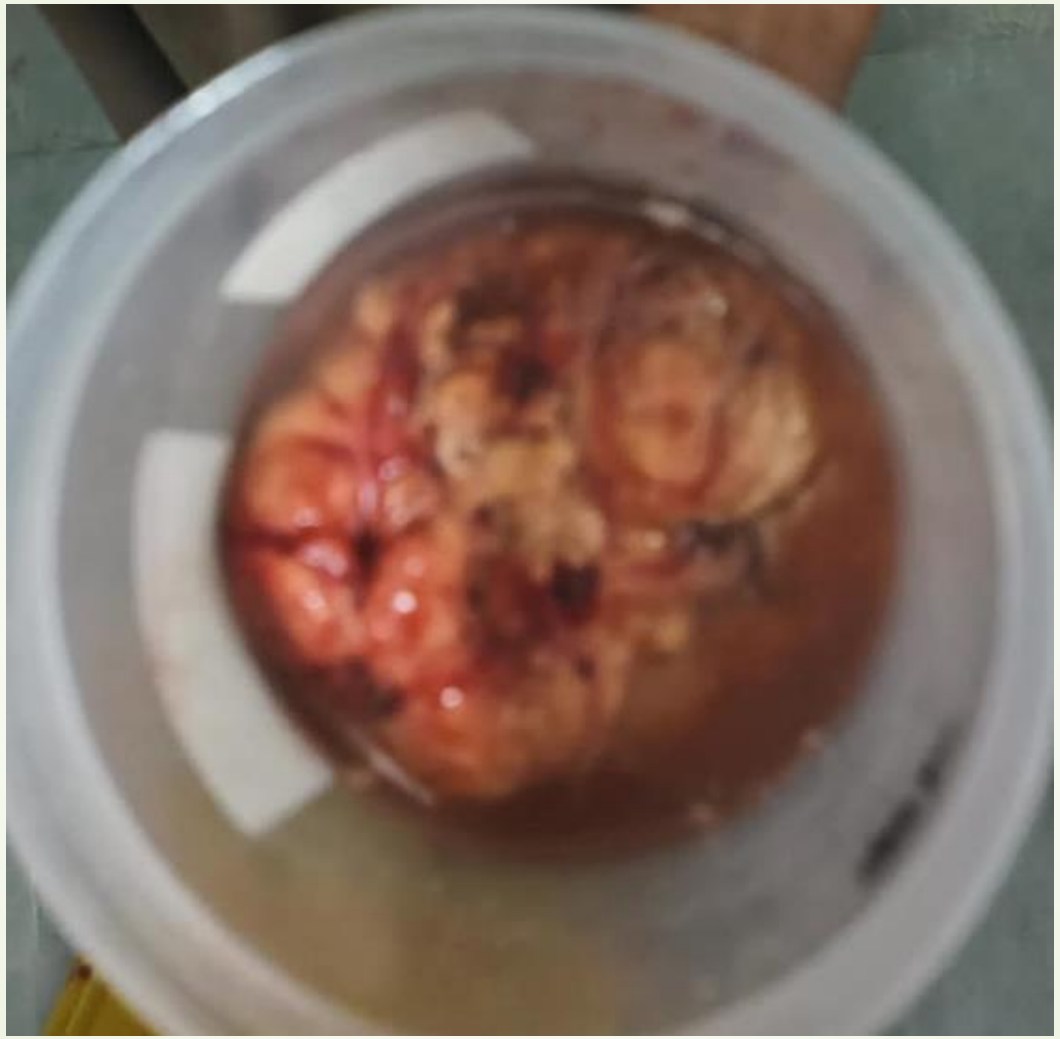
INVESTIGATIONS

- **MRI (Outside) on 11/02/2023 :**
- Well defined encapsulated intra muscular fatty mass lesion
- (Hyperintense on T1W/ T2W & Hypointense on STIR) noted in Rectus Femoris. The lesion is measuring (W- 11.5 cm x A.P. - 7.5 cm x H- 15.7 cm);
- Inferior part of the mass lesion shows irregular area (Hypointense on T1W, Hyperintense on T2W & STIR - possible Necrotic area.
- Minimal edema noted surrounding the inferior end of the mass lesion.
- **OPINION :** Features are S/o- Intramuscular Lipoma / Liposarcoma.

- **FNAC (Outside) on 14/02/2023 :**
- Smear studies show moderate cellularity showing mature adipose tissue fragments.
- **IMPRESSION :** Features are suggestive of lipoma







S-1116/23

Presenter : Dr. M. Jhansi bai, 2nd year PG

Moderator : Dr B Amulya

Associate professor

Dr. I.V. Renuka,

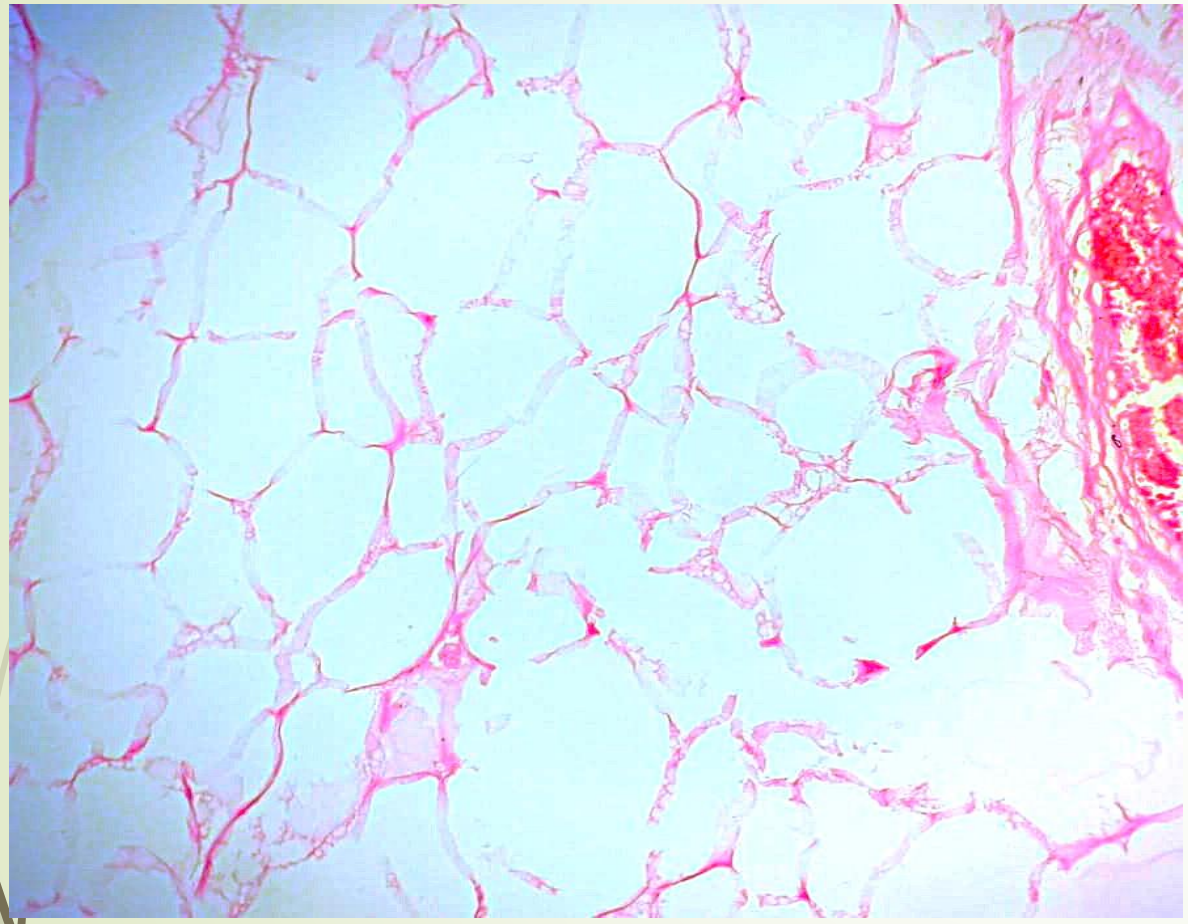
Professor & HOD,

Department of Pathology

Gross

- Received a single grey brown to grey yellow tissue mass measuring 15x12x5.2 cm.
- Cut section – grey yellow to grey brown with areas of hemorrhages

Microscopy:



10x; H&E stain

Figure 1: Sections studied shows lobules of mature adipocytes separated by thin fibrovascular septae.
No evidence of malignancy.

Opinion: Lipoma.

- Patient was discharged on POD-4 on 27/02/2023
- Post-operative recovery was good.
- Patient is currently under regular follow-up
- Complication : myositis ossificans 6 months post surgery.

LABORATORY REPORT

DEPARTMENT OF PATHOLOGY

me	: Mr. SUDHEER MODEPALLI	Age /Sex	: 38 Y(s)/Male
l Date	: 03-Aug-2023 09:57 AM	UMR No	: NRI3872071
ported Dt	: 04-Aug-2023 12:11 pm	Bill No	: BIL4422079
f By	: Dr.GENERAL SURGEON UNIT-I	Result No	: RES2706367 / CY-2270/23
		Specimen	: FNAC
		Barcode Dt	03-Aug-2023 9:59 am

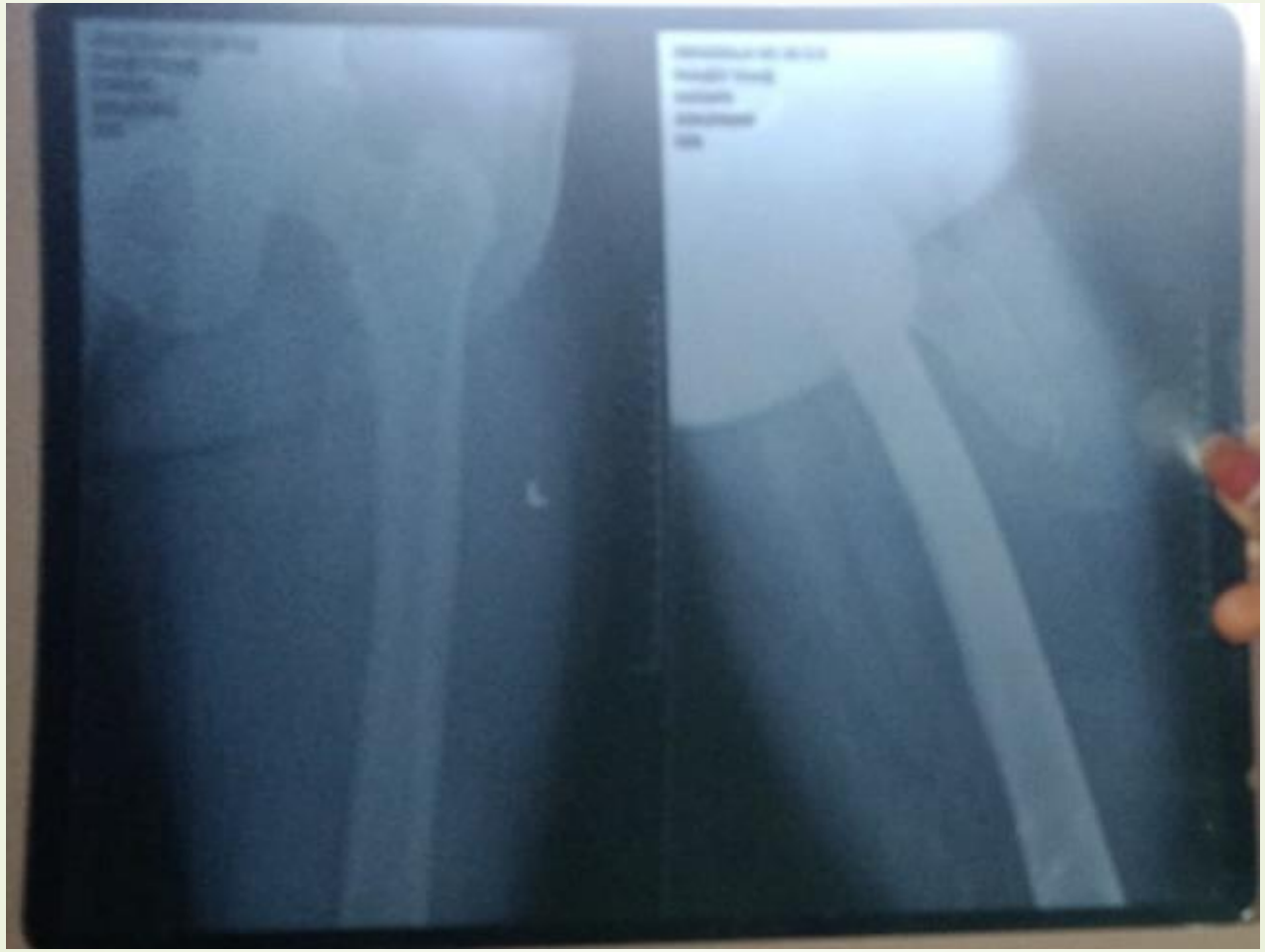
FNAC REPORT

ology No:	: CY-2270/23
of FNAC	: FNAC swelling from right thigh
ical Diagnosis	: ? Myositis ossificans
oscopic Examination	: Repeated aspiration show only blood and blood cellular elements along with skeletal muscle.
ION	: No malignant cells seen.

*** End Of Report ***

NRI Academy of Sciences

X-RAY



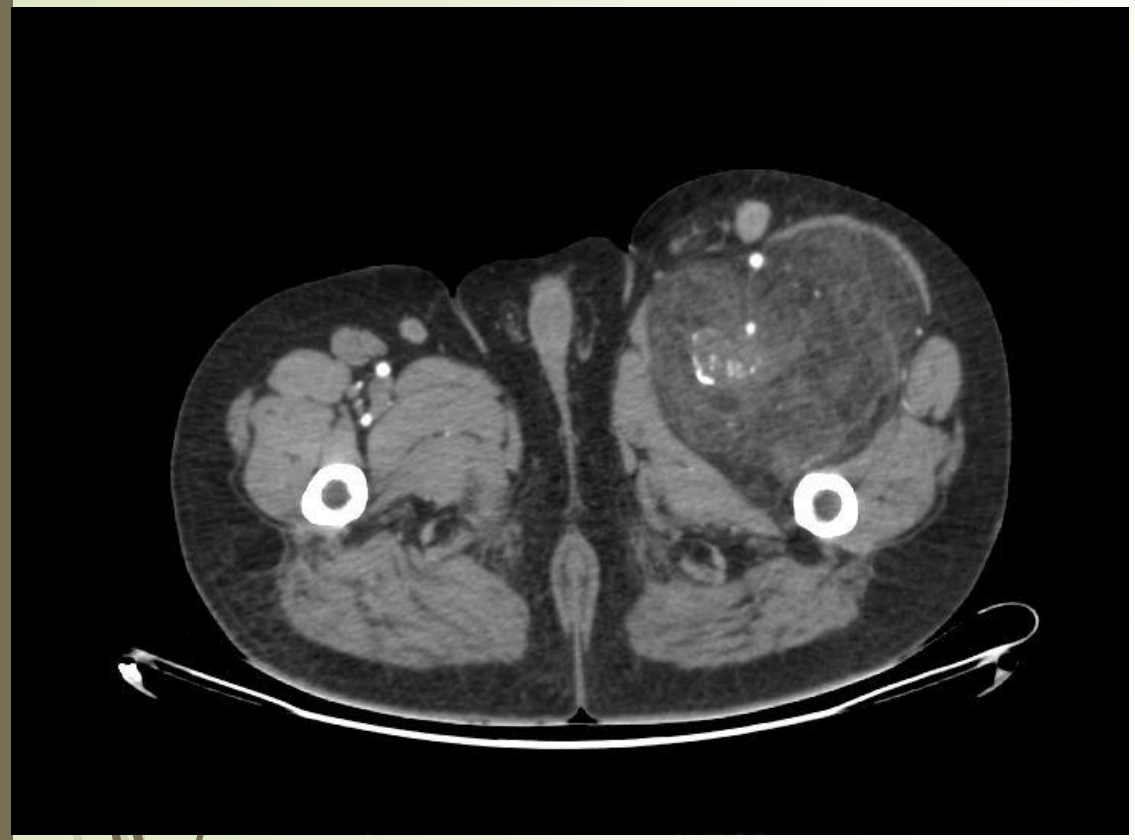
Case – 3 : LIPOSARCOMA

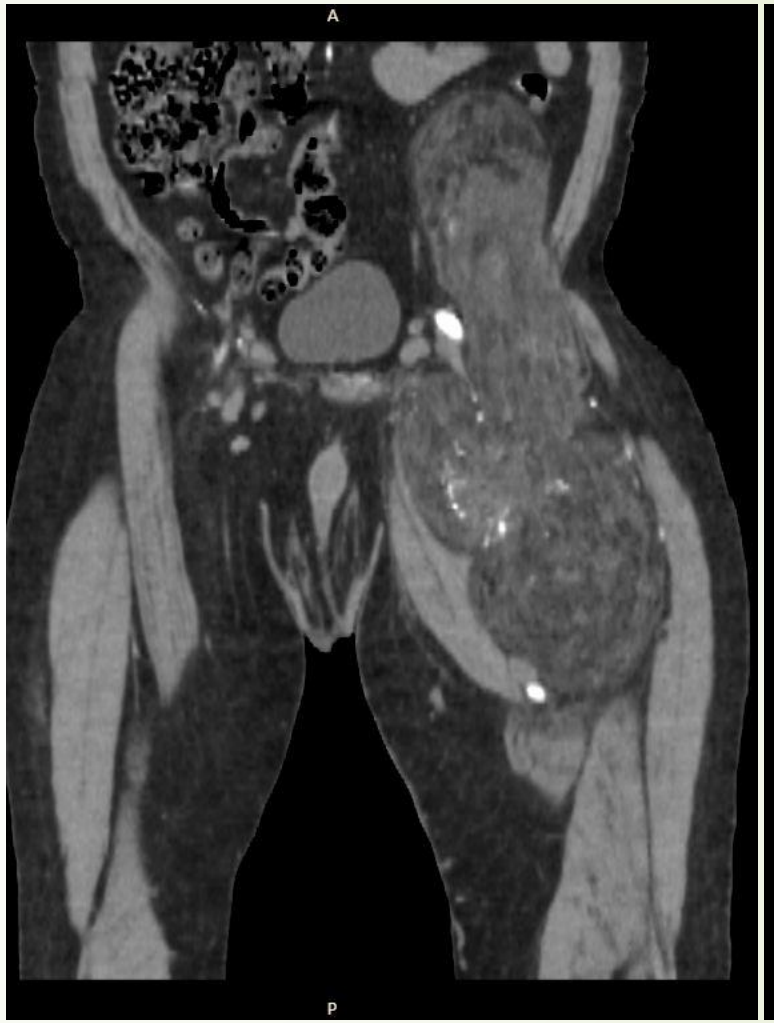
- Presenting Complaints :
- A 55 year old male patient came with C/O Swelling medial aspect of left thigh to left inguinal region and since 2 years, not associated with pain.
- Pt C/O difficulty in sitting
- C/O wound over left leg since 2 months , asoociated with serous discharge since 1 month and mild pain.

- Past History :
- No Co-morbidities.
- No significant past history.
- H/o Jaboulay's Eversion 7 years ago.
- Addictions : Ex-Smoker , Ex-Alcoholic

Investigations: CECT – Abdomen

- **IMPRESSION :** A large well-defined non-enhancing heterodense mass lesion of 32x11x11cm size with multiple calcific foci within the mass lesion, seen in left iliac region, which is tracking antero-inferio-laterally upto medial aspect of proximal-thigh, with mass effects and infiltrations as described :
- **Infero-medially :** It is indenting lateral aspect of left ilio-psoas muscle and shows loss of fat planes with it.
- **Antero-laterally :** it is displacing the sartorius muscle anterolaterally and shows loss of fat planes with it
- Suggestive of infiltration.
- **Laterally** it is indenting medial aspect of vastus medialis
- **Medially** it is indenting lateral aspect of adductor longus, brevius and magnus, with suspicious loss of fat planes with adductor magnus muscle.

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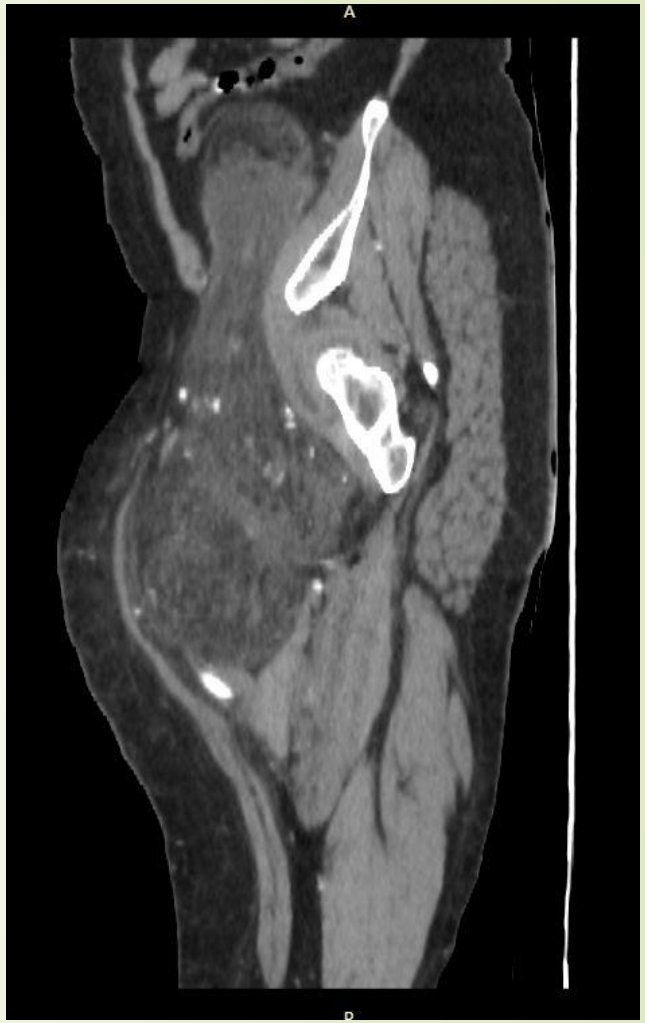
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BIOPSY (OUTSIDE)

- **Histopathology Biopsy :** Small Specimen

- **Comments :**
  - Findings might be suggestive of fibrolipoma , under appropriate clinico-radiological setting.
  - However correlation with excision biopsy is required for confirmation and definite diagnosis.

- **Microscopic Examination :**
  - Section shows few cores of fibroadipose to fibromuscular tissue
  - No Atypia / Malignancy seen


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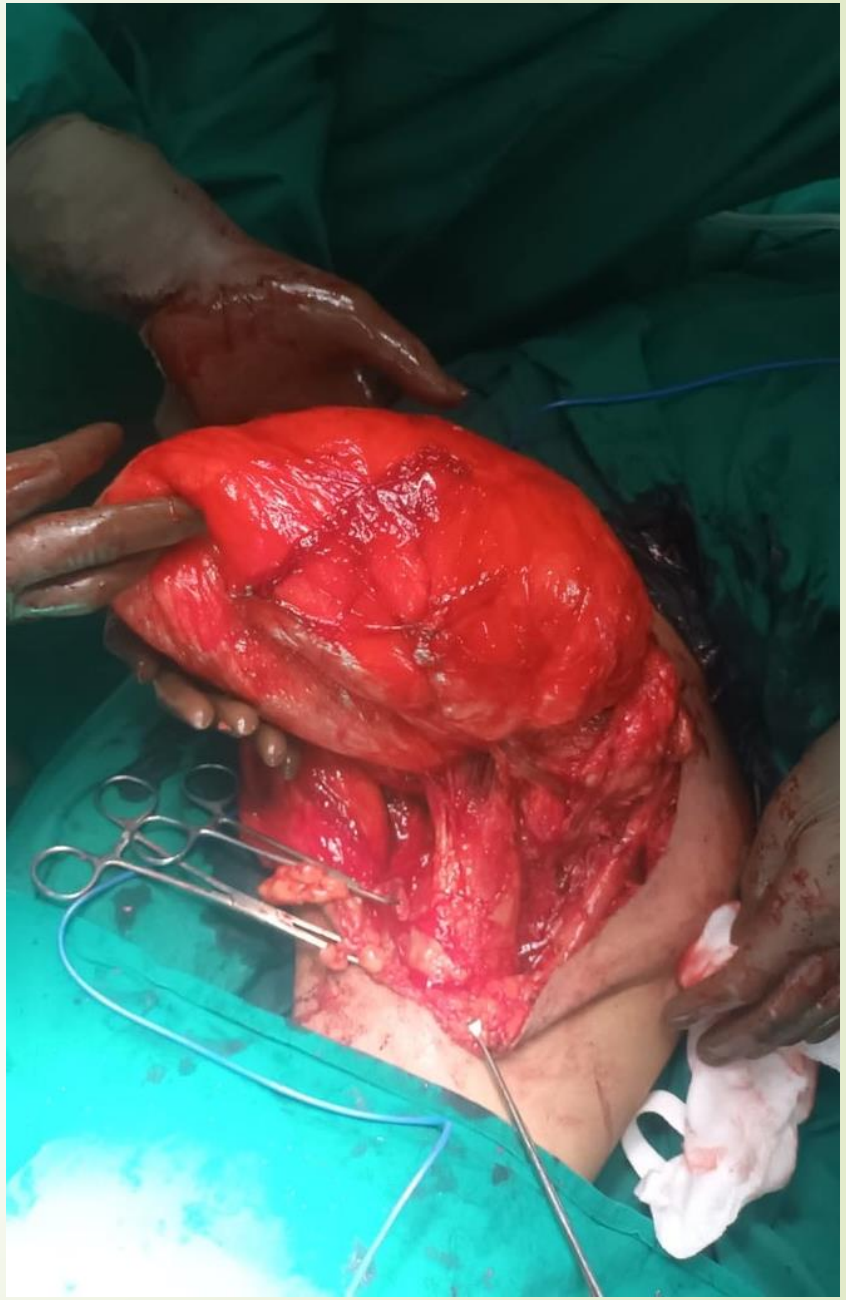

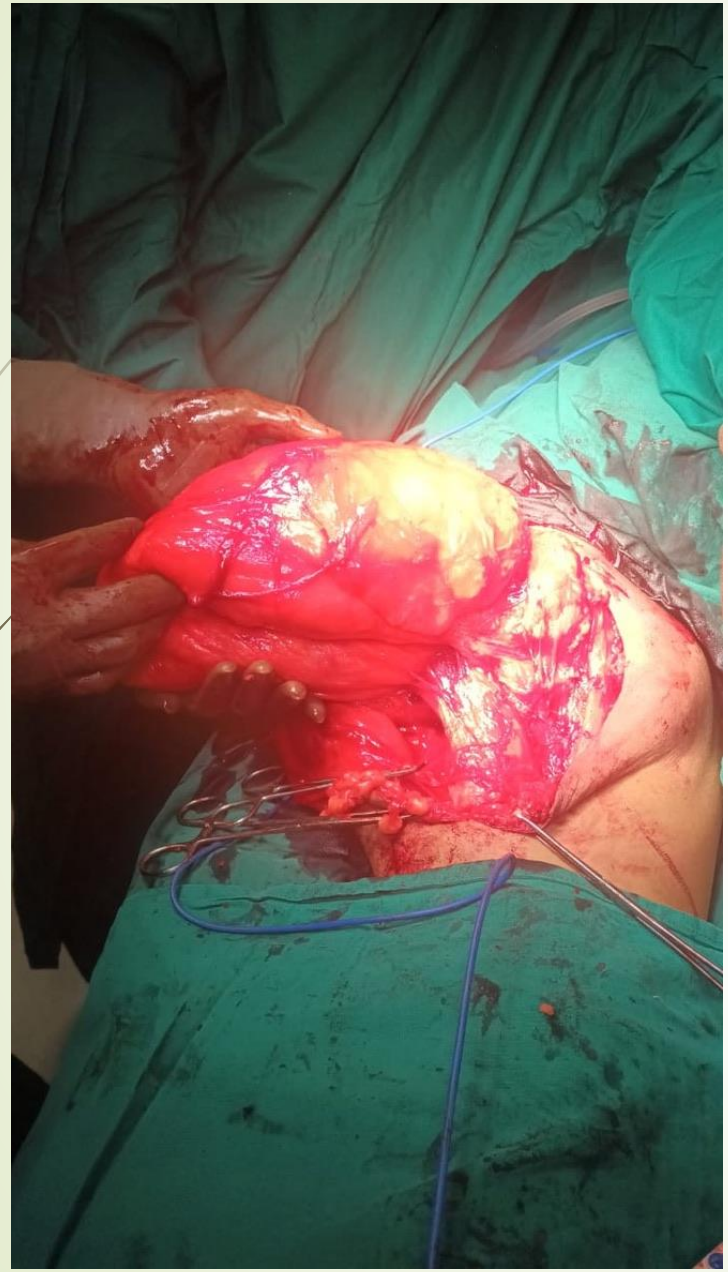


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S-6519/24

Presenter : Dr. M. Jhansi bai, 2nd year PG

Moderator : Dr B Amulya

Associate professor

Dr. I.V. Renuka,

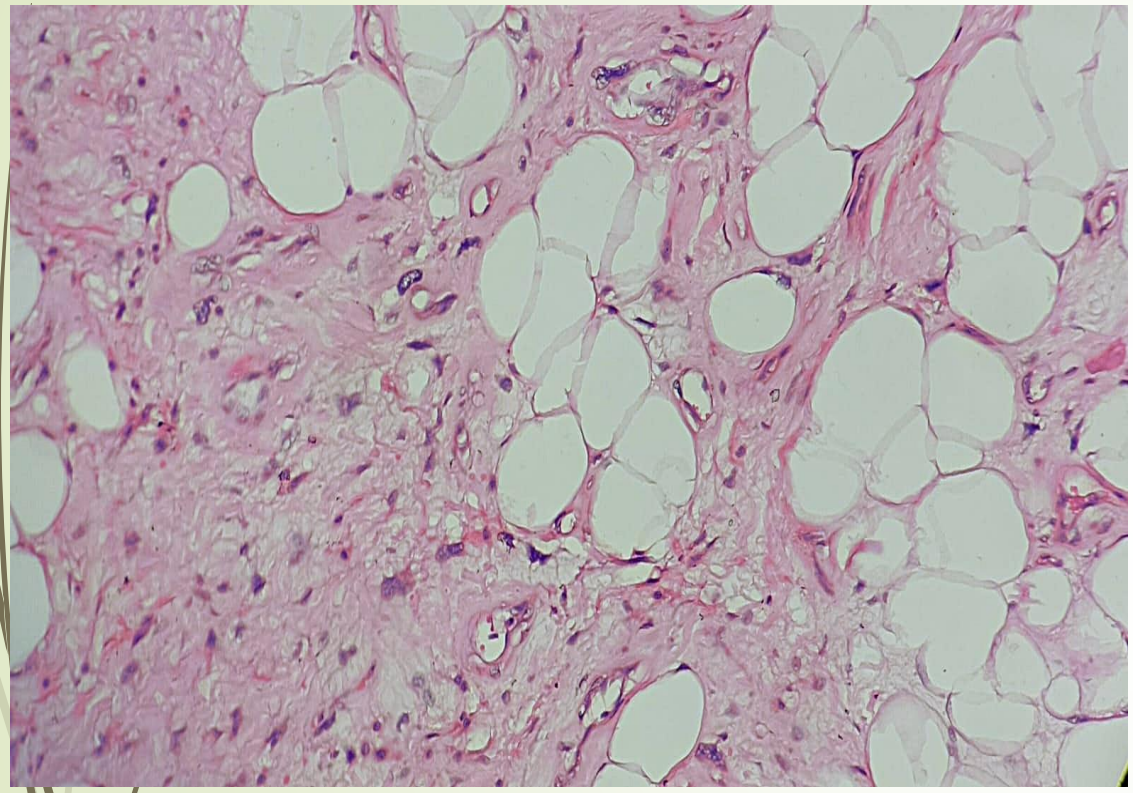
Professor & HOD,

Department of Pathology

Gross

- Received two fibrofatty tissue masses. Larger measuring 27x11x11 cm and smaller measuring 9.5x8x3 cm.
- External surface identified a ragged area measuring 10x6.5 cm.
- Cut surface of both masses – grey yellow with focal grey brown areas

Microscopy:



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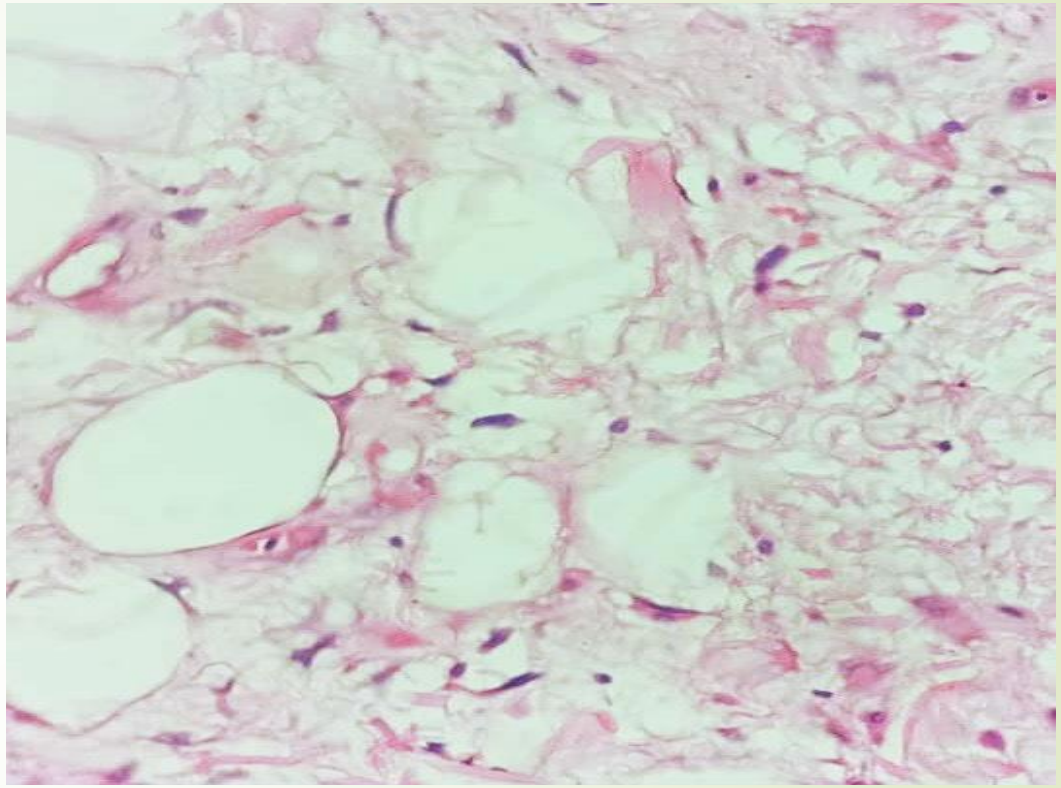
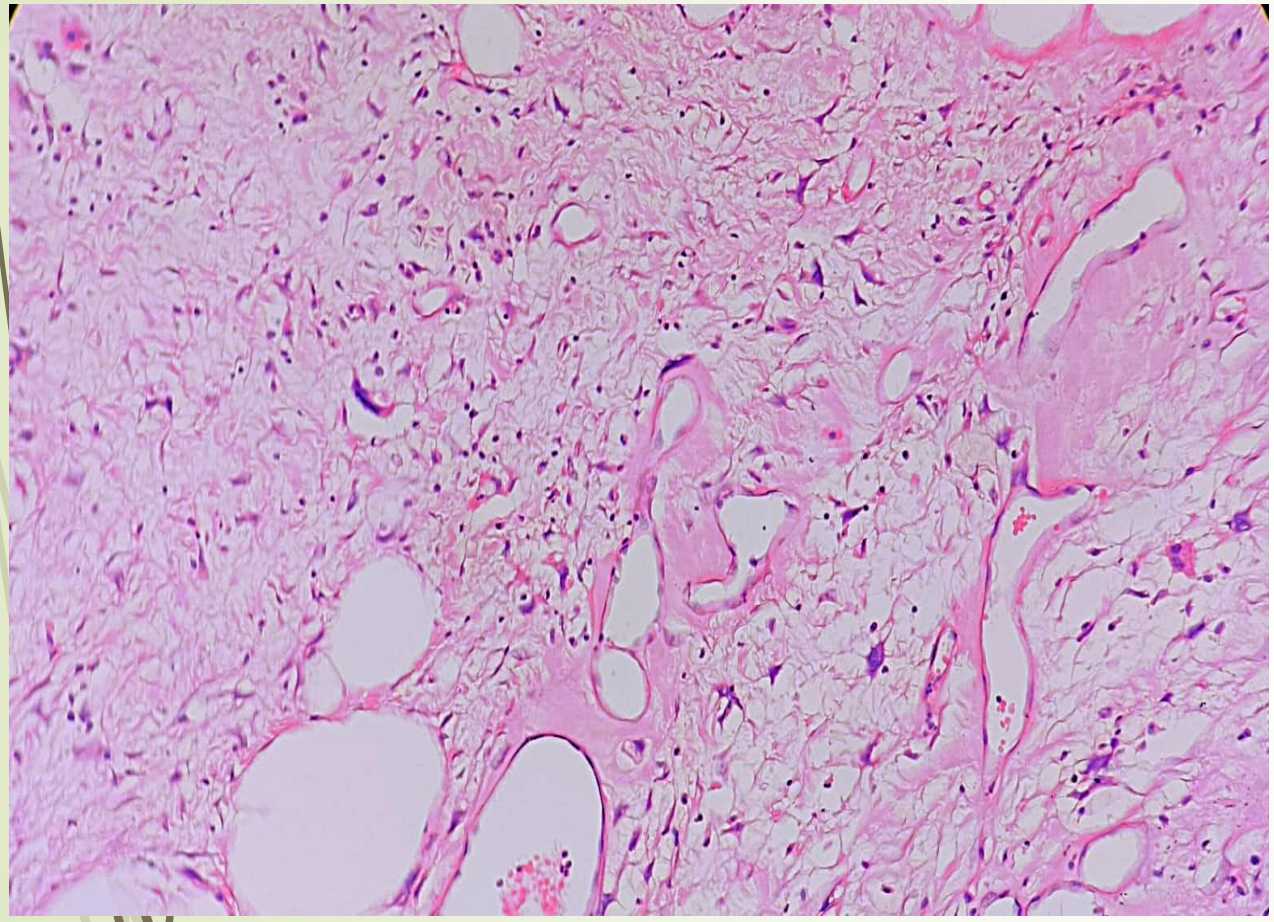


H&E, 40X

Figure 1 : Sections studied shows multivacuolated lipoblasts which are large, the nucleus is hyperchromatic, indented or sharply scalloped with lipid rich vacuoles in the cytoplasm.



H&E, 10X

Figure 2 : Atypical neoplastic fat cells composed of hyperchromatic, irregular nucleus within thick fibrous tissue.

Opinion: Well Differentiated Liposarcoma. (lipoma-like)

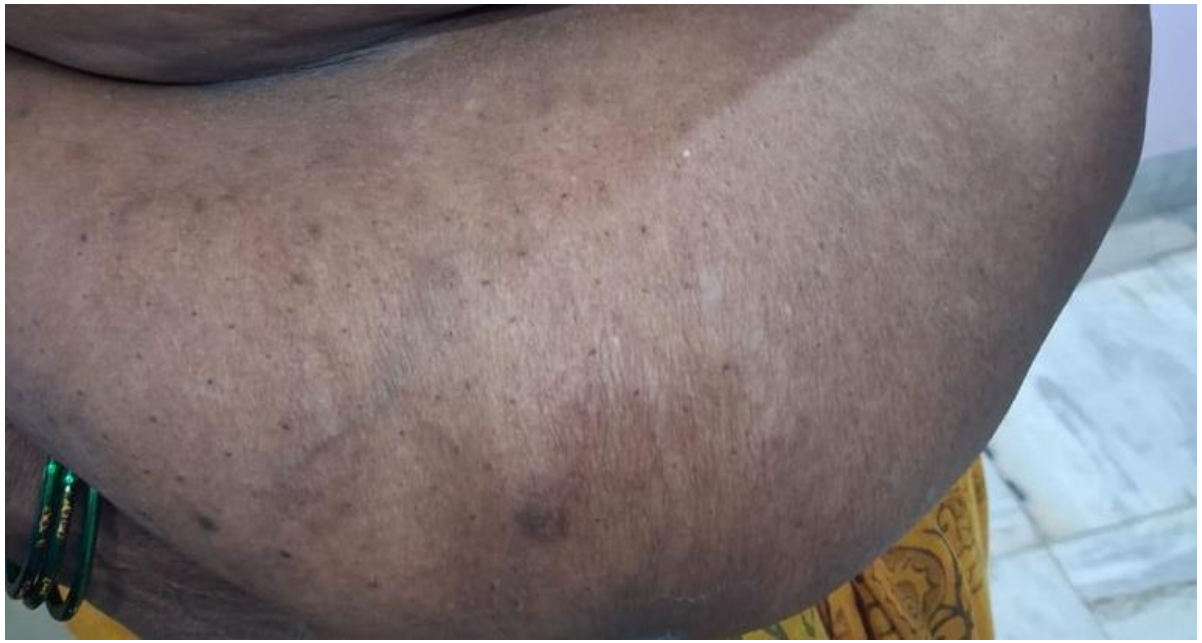
Post-op

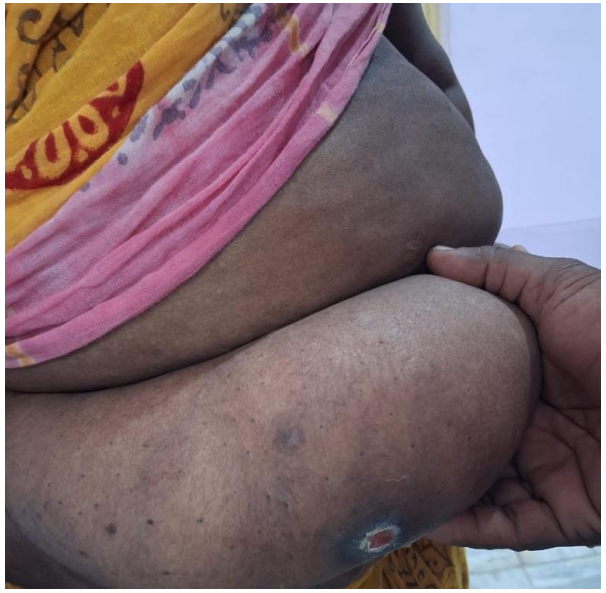
- Patient was discharged on POD-10 of excision of mass.
- Post-operative recovery was good.
- Patient is currently under regular follow-up
- Complication : Minimal Lymphedema

Case – 4 : LIPODYSTROPHY

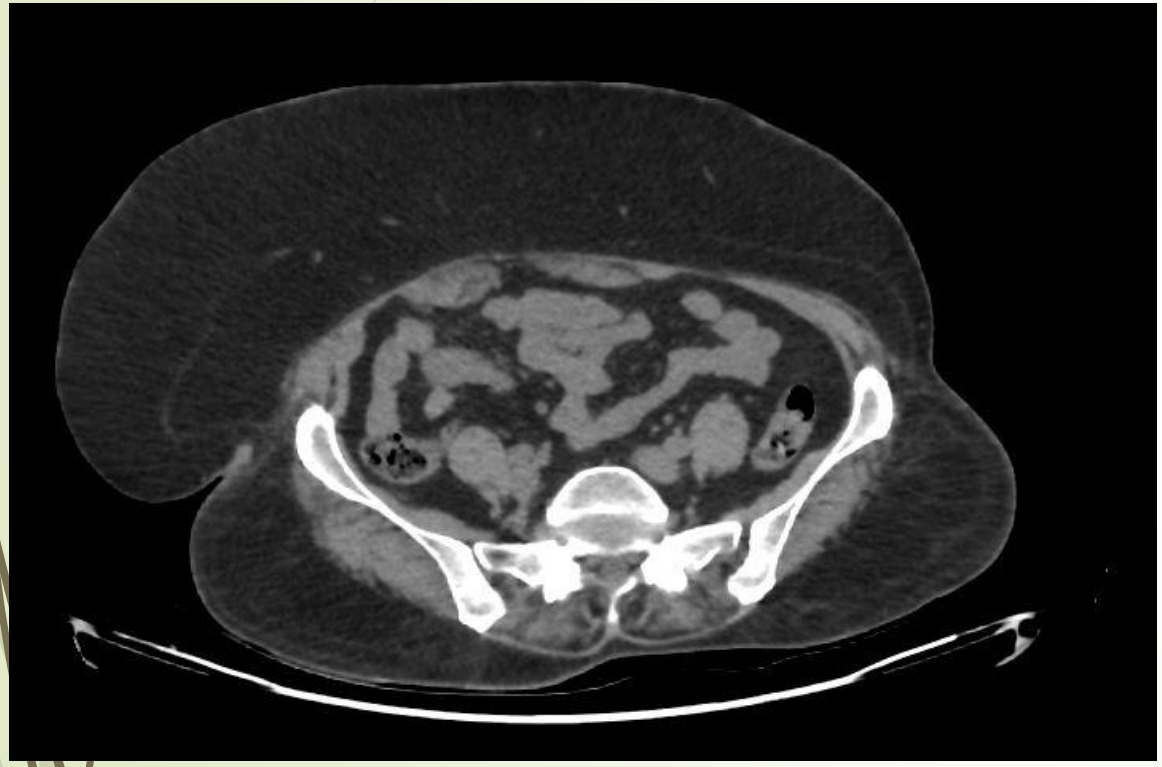
- Presenting Complaints :
- A 60 year old female patient came with C/O Large Folds of anterior abdominal wall and fall over thighs since 4 years, extending upto upper 1/3rd of thigh
- Lax tissue is soft to doughy in consistency.
- An ulcer of size 3 x 2 cm noted over left side of abdominal wall due to trauma.

- Past History :
- No H/O similar complaints in the past.
- K/C/O T2DM since 5 years ; on medication
- K/C/O HTN since 5 years ; on medication
- Patient was tubectomised 25 years ago

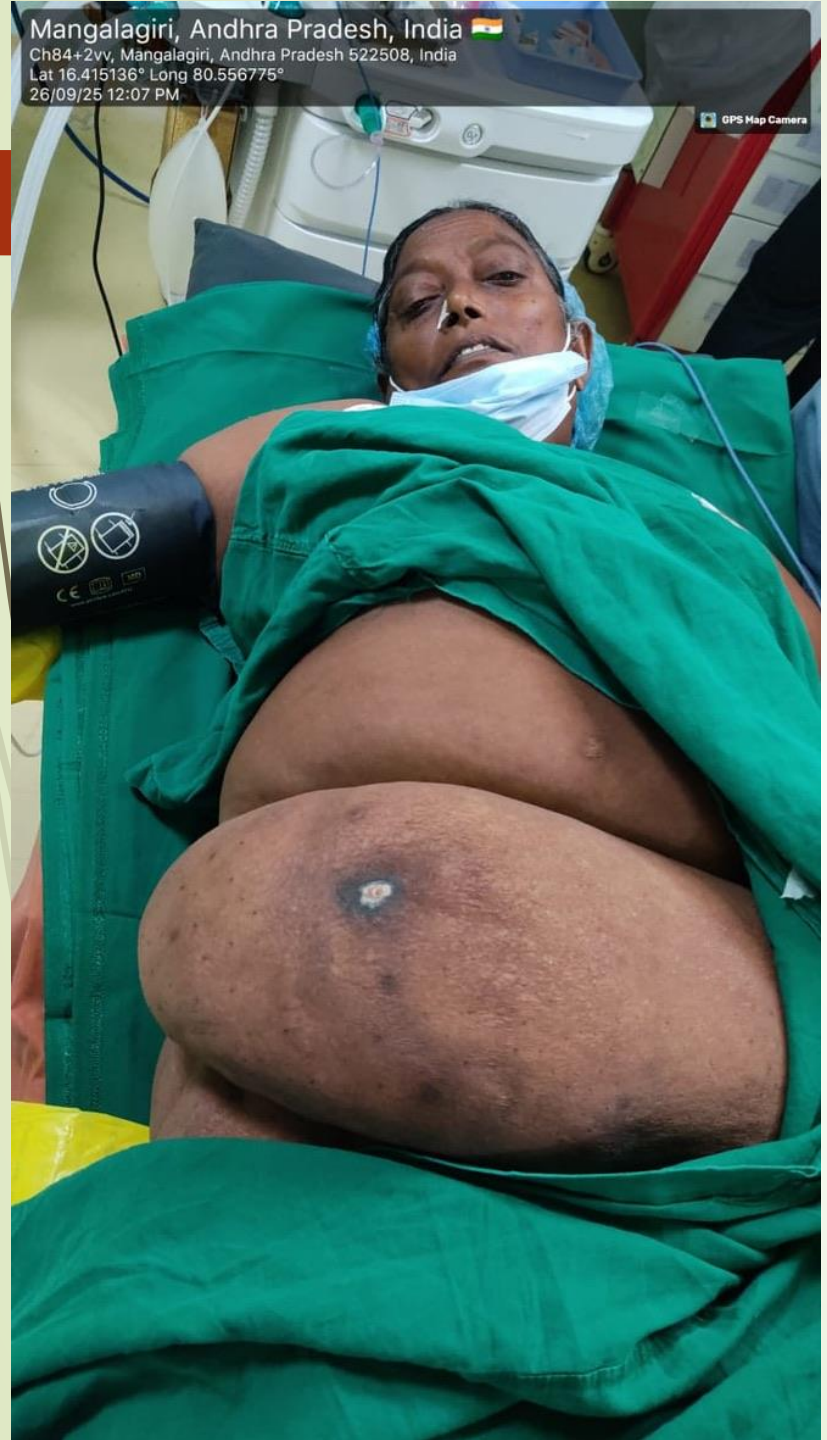




CT ABDOMEN PLAIN STUDY



- Diffuse subcutaneous fat noted along anterior abdominal wall.
- No evidence of any abdominal wall defects/hernias in present study.
- (On USG correlation: Surface irregularity noted in along the anterior abdominal wall at the right inferolateral wall at infraumbilical region - likely ulcer).
- No evidence of collections in present study.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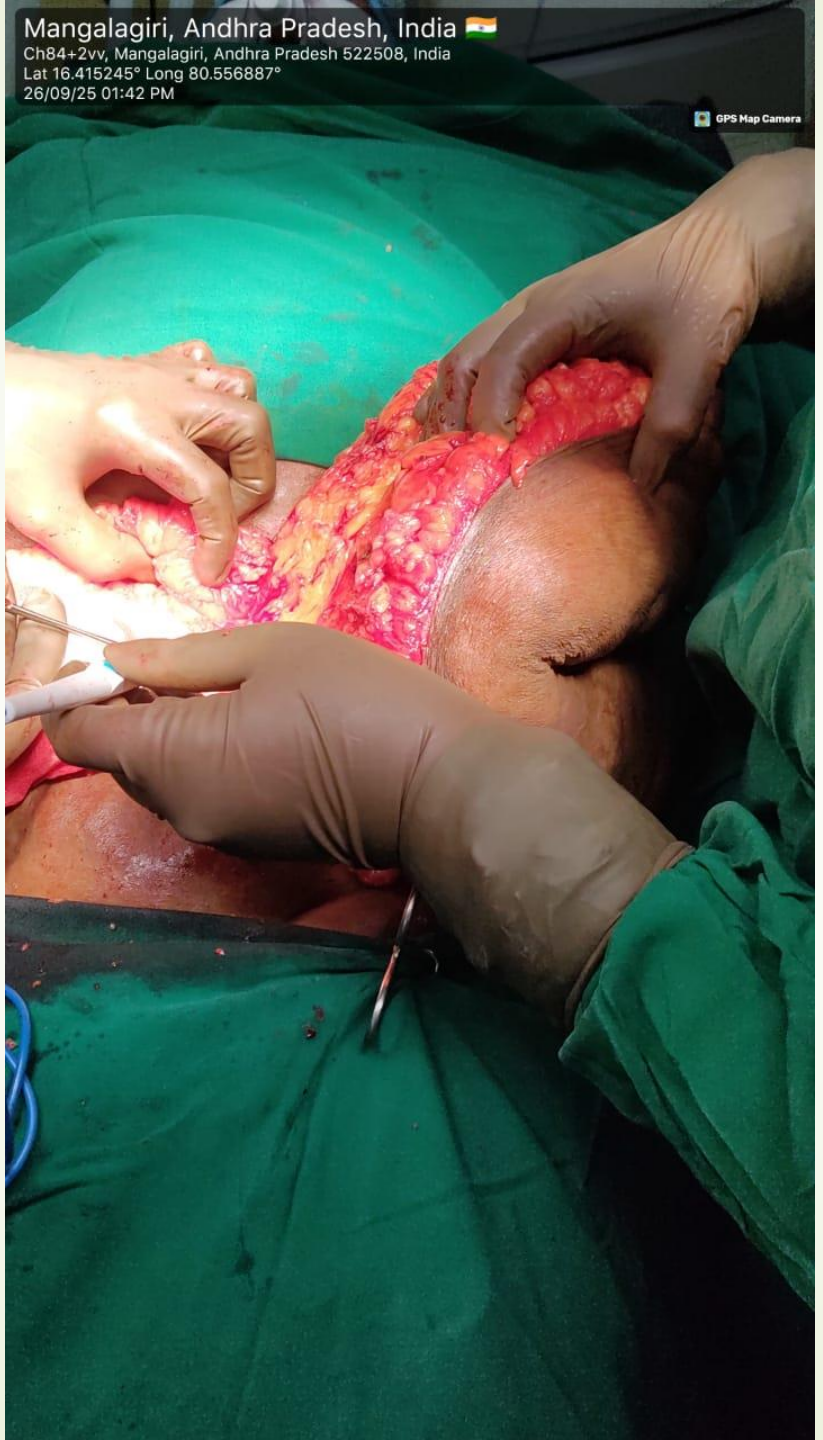
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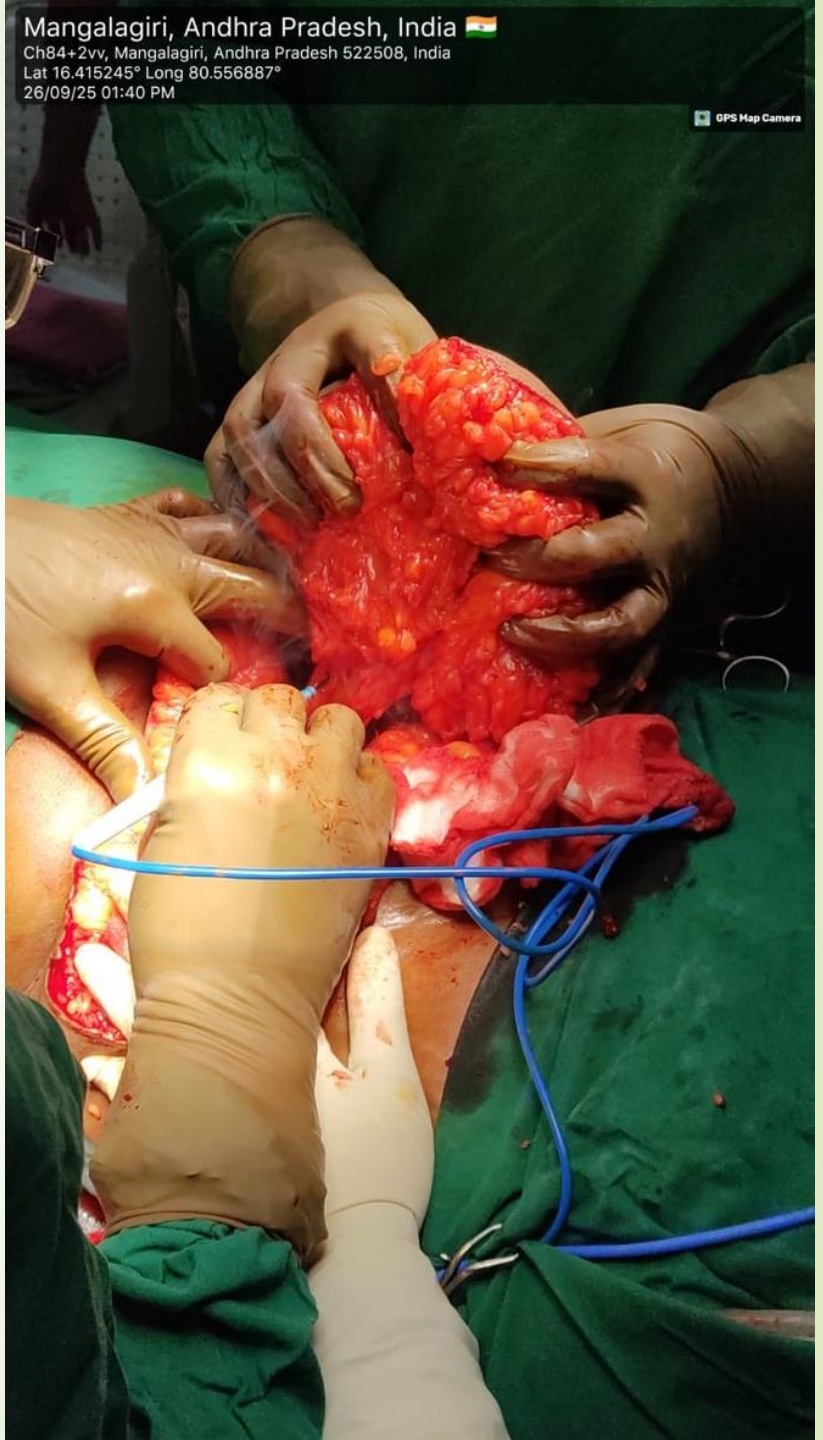
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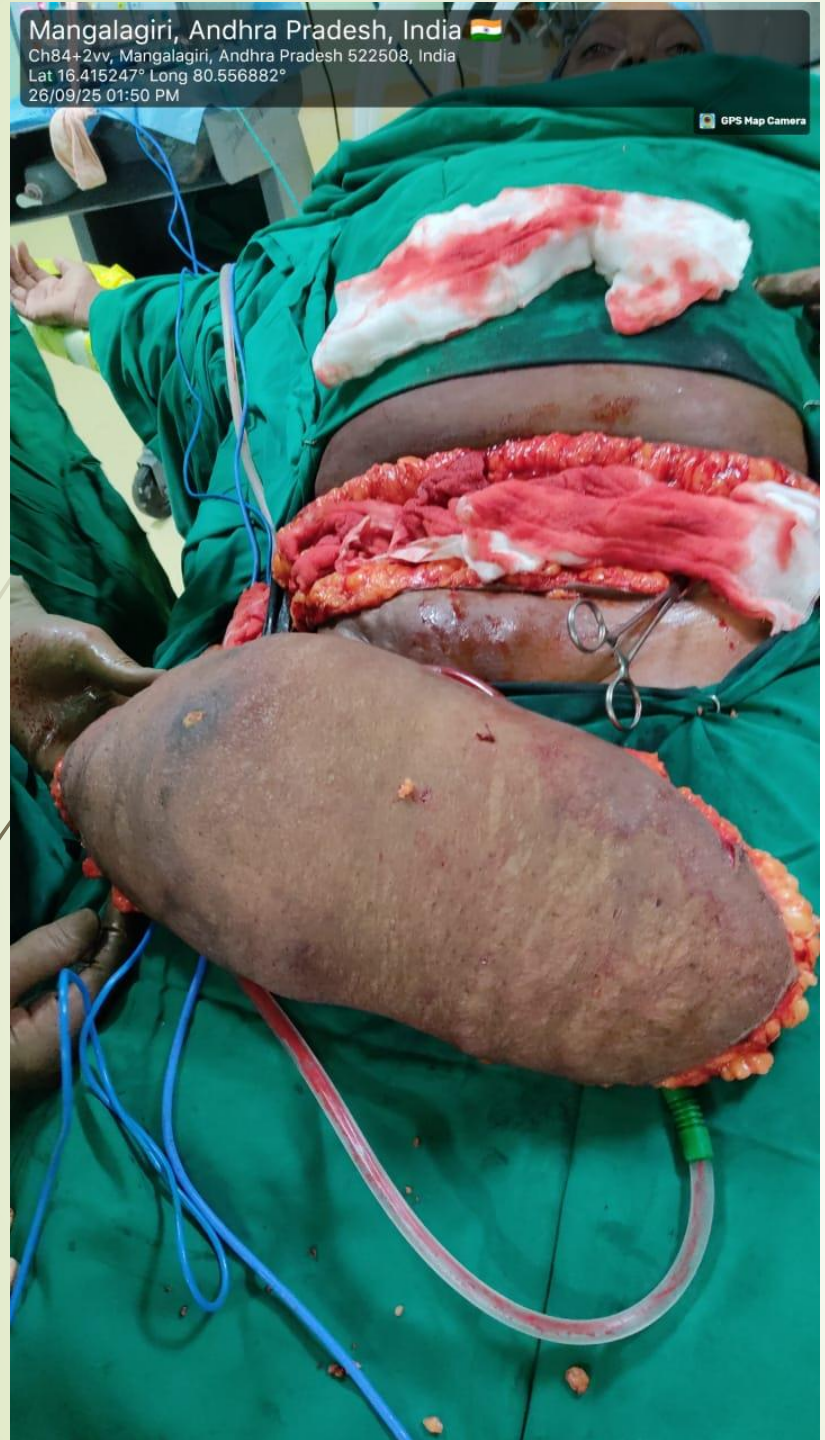
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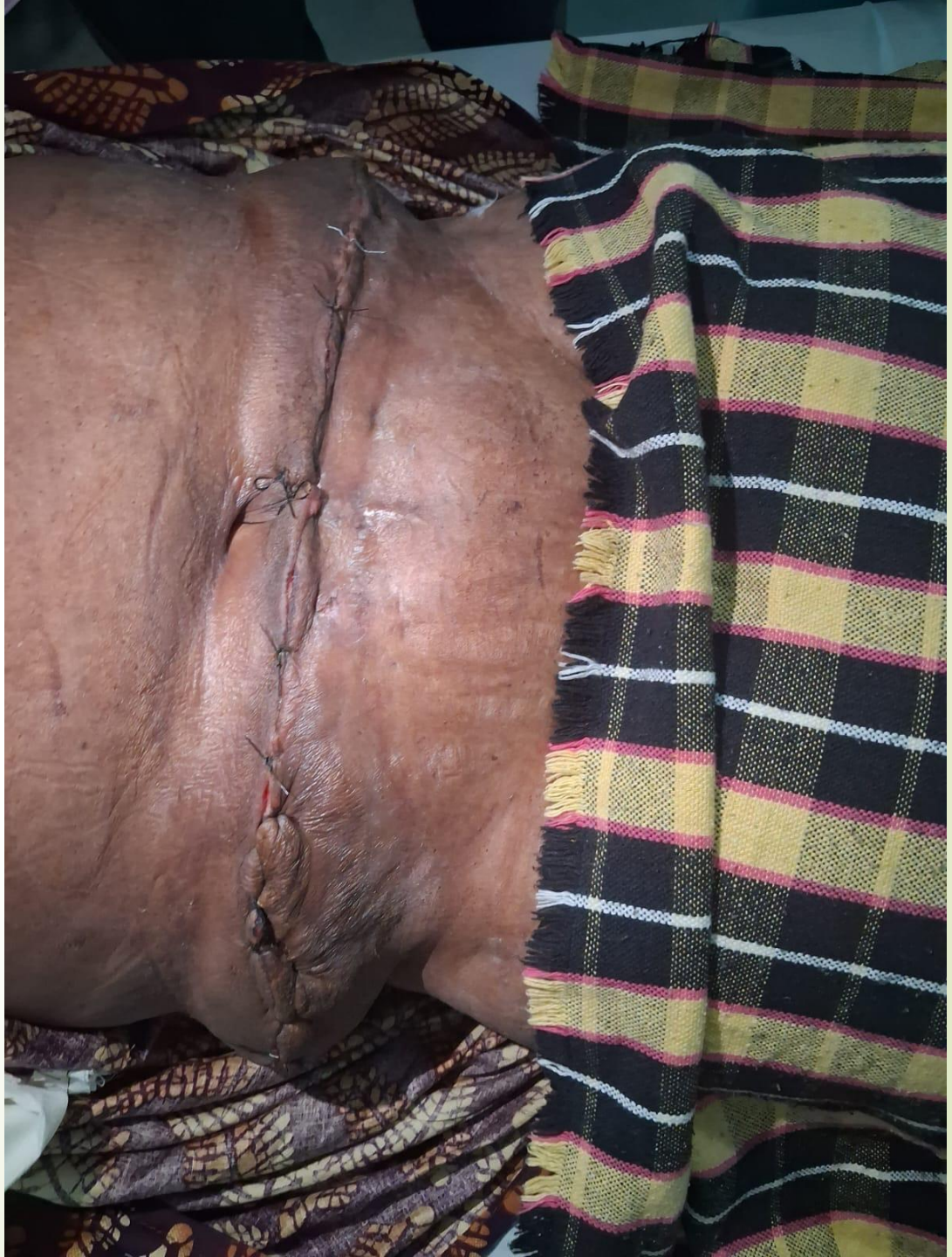


S-6903/25

Presenter : Dr. M. Jhansi bai, 2nd year PG

Moderator : Dr B Amulya

Associate professor

Dr. I.V. Renuka,

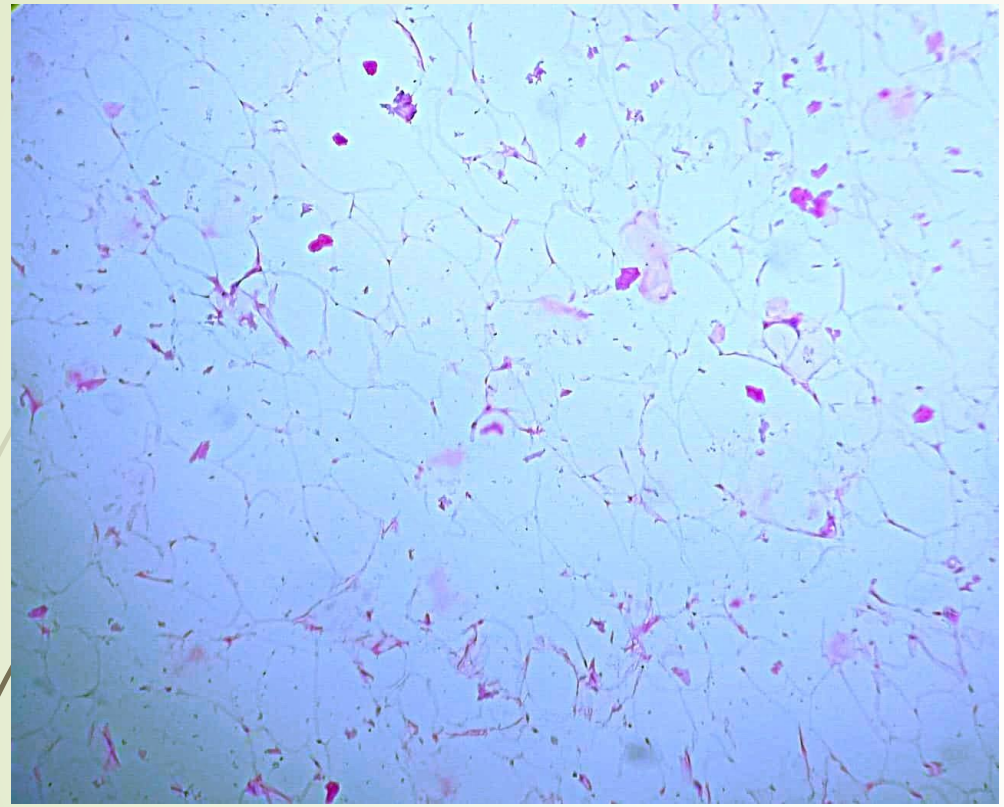
Professor & HOD,

Department of Pathology

Gross

- Received a skin covered fibro fatty tissue mass measuring 35x21x7 cm with overlying skin measuring 35x21x7 cm. External surface of skin identified an ulcer measuring 1x0.5 cm.
- **Cut section :** grey yellow and greasy.

Microscopy:



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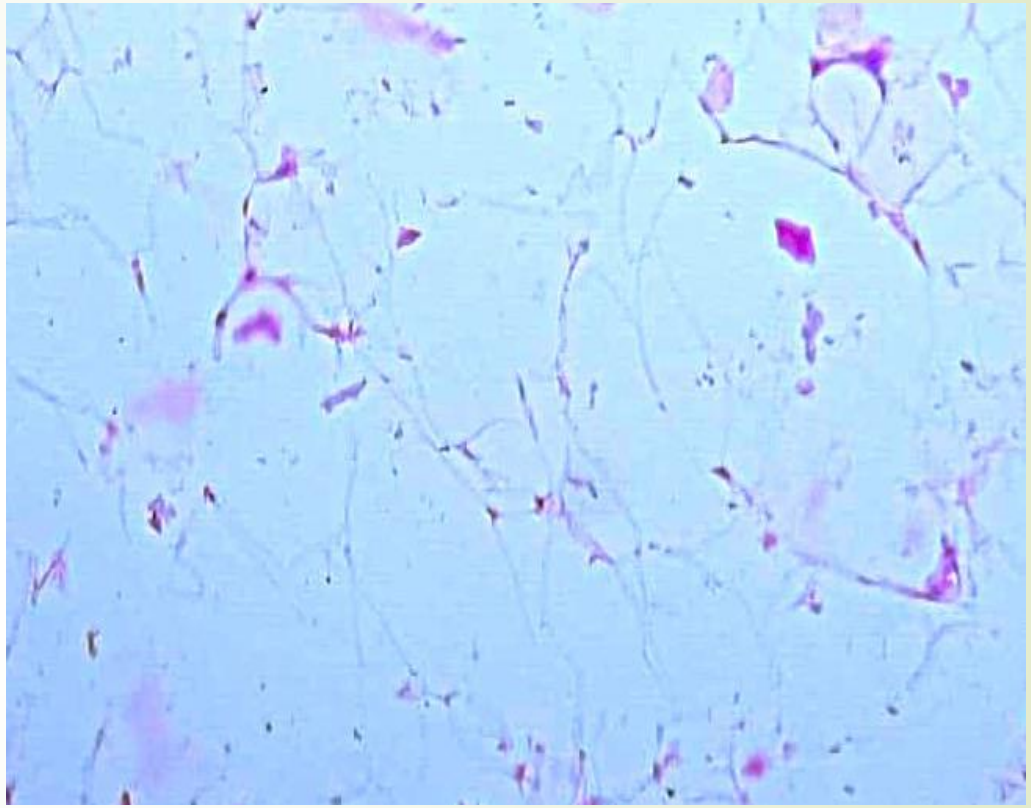
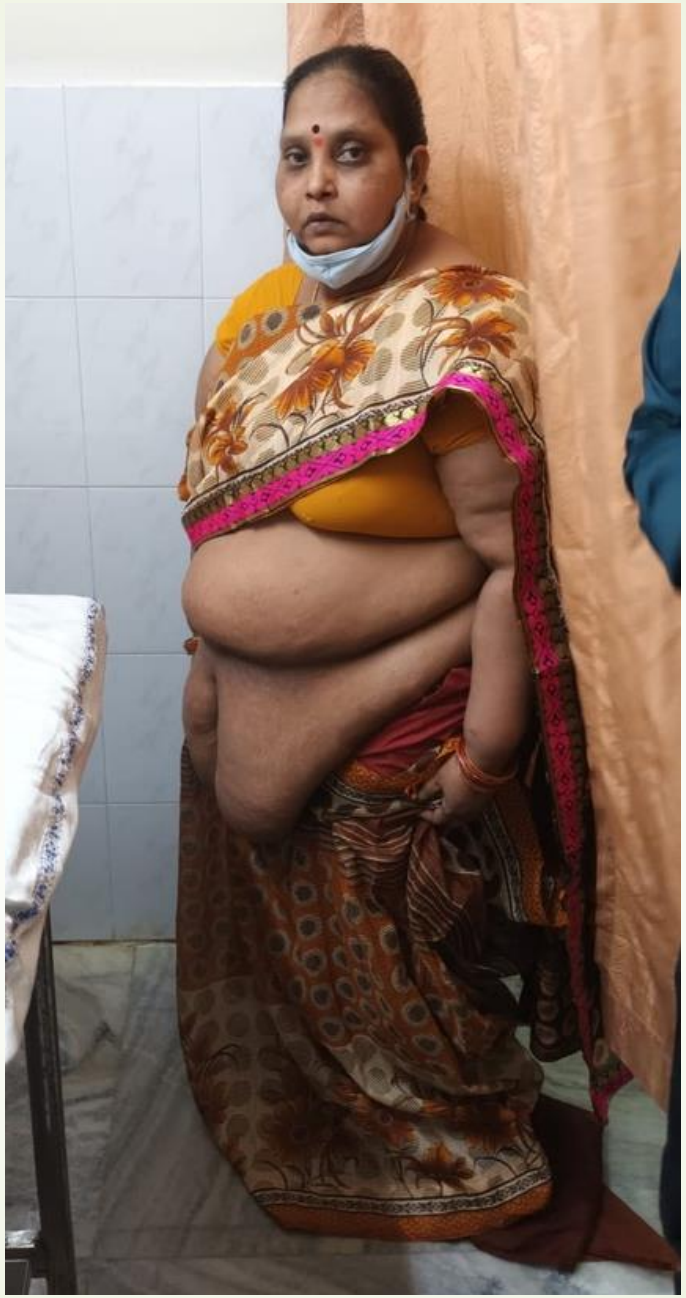


H&E, 40X

Figure 1: Sections studied shows skin covered with hyperkeratotic pigmented stratified squamous epithelium. Deep dermis shows lobules of mature adipocytes separated by thin fibrous septa.

OPINION : Histological appearances are consistent with - Lipoma

- Post-operative recovery was good.
- Patient was discharged on POD-7 on 03/10/2025.



THANK YOU