Metastatic malignant melanoma revisited

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Learning objectives

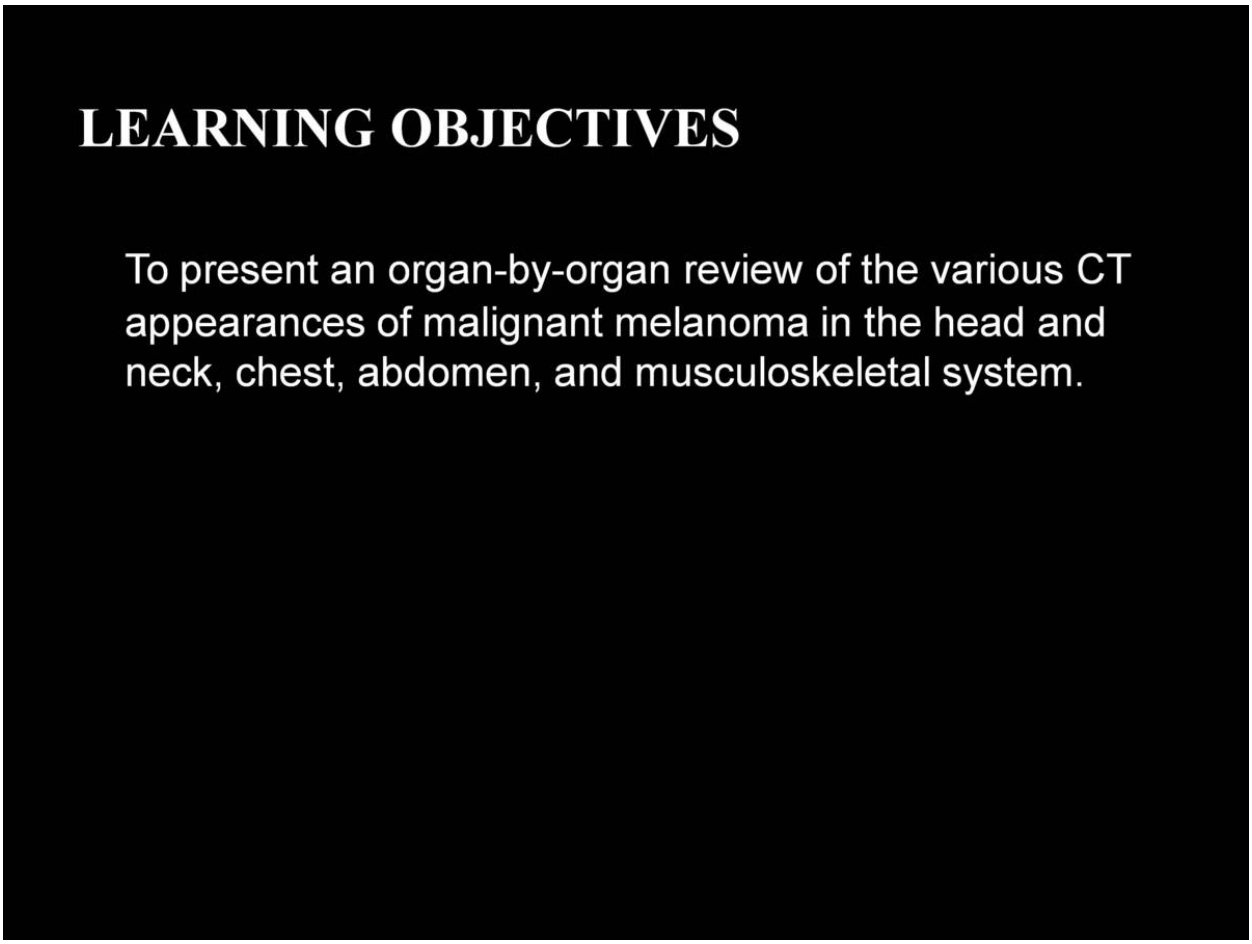

Fig.
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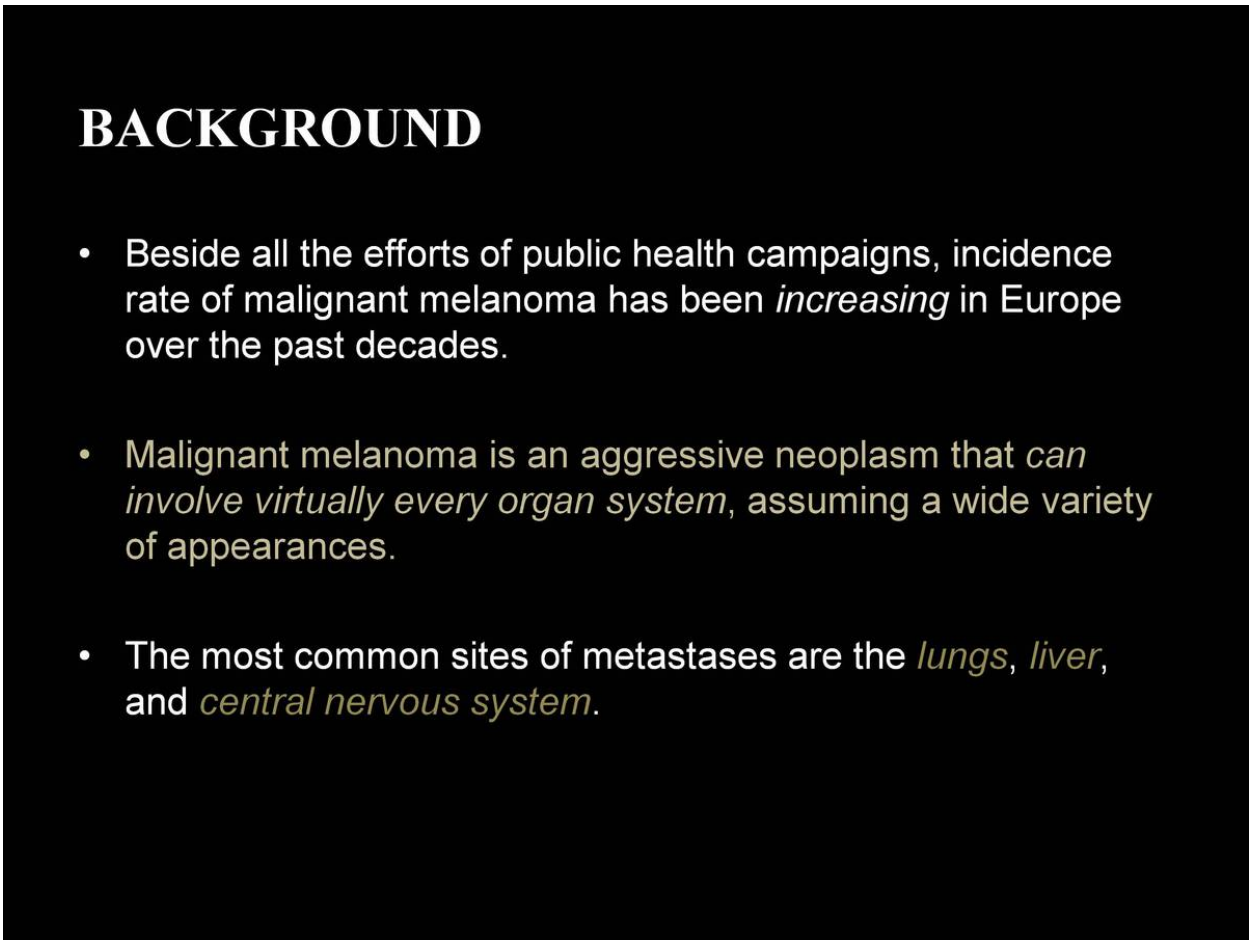
Background



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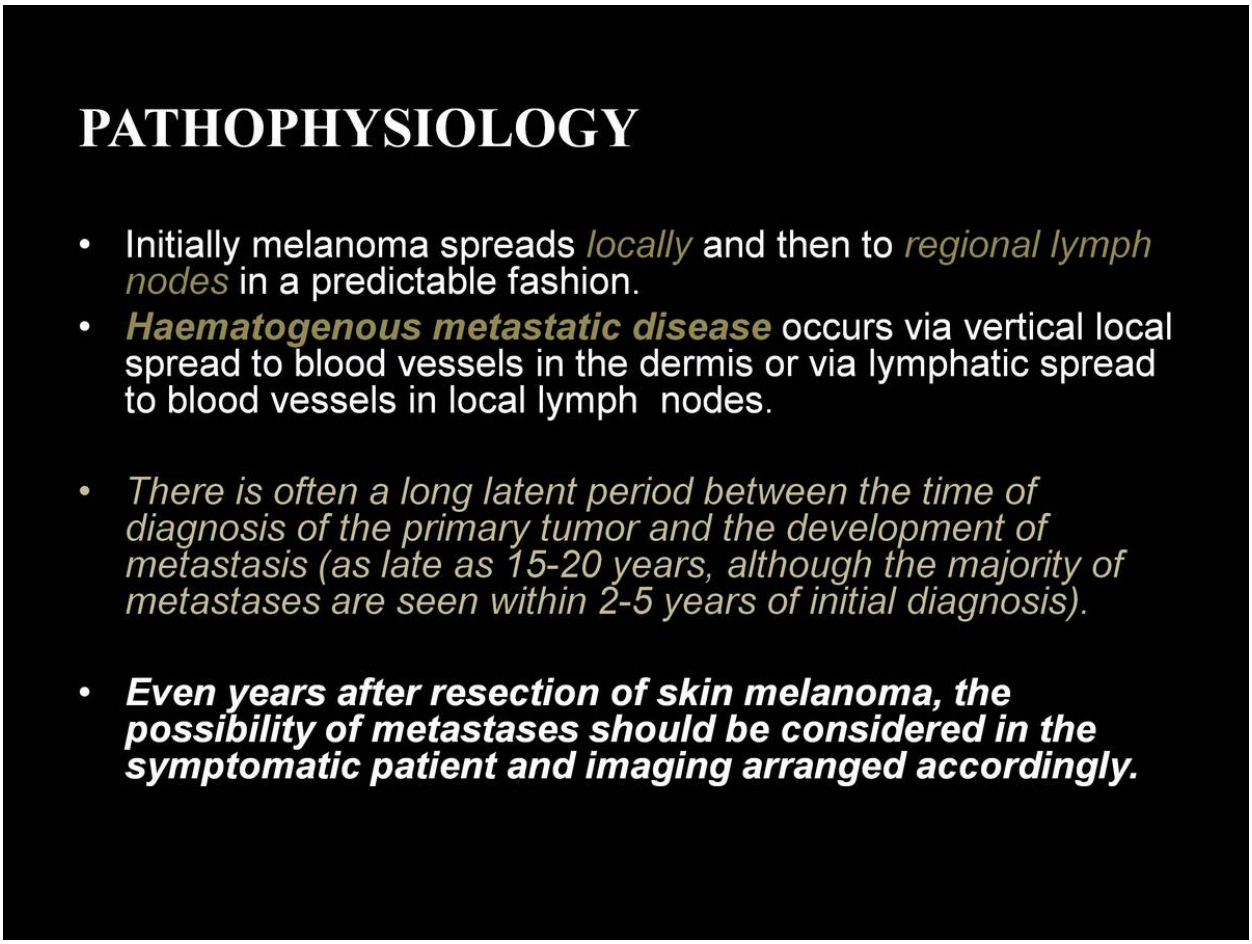

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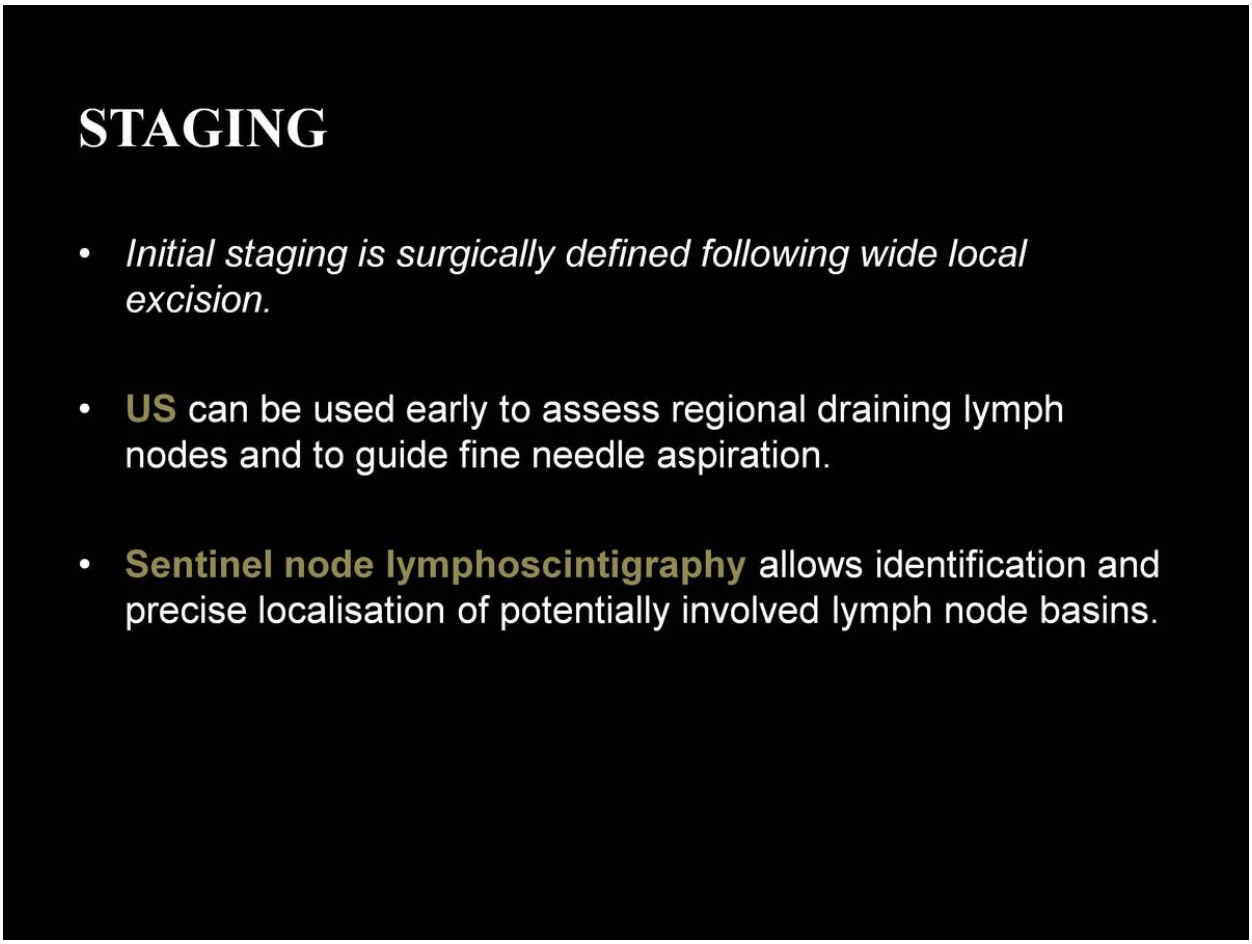

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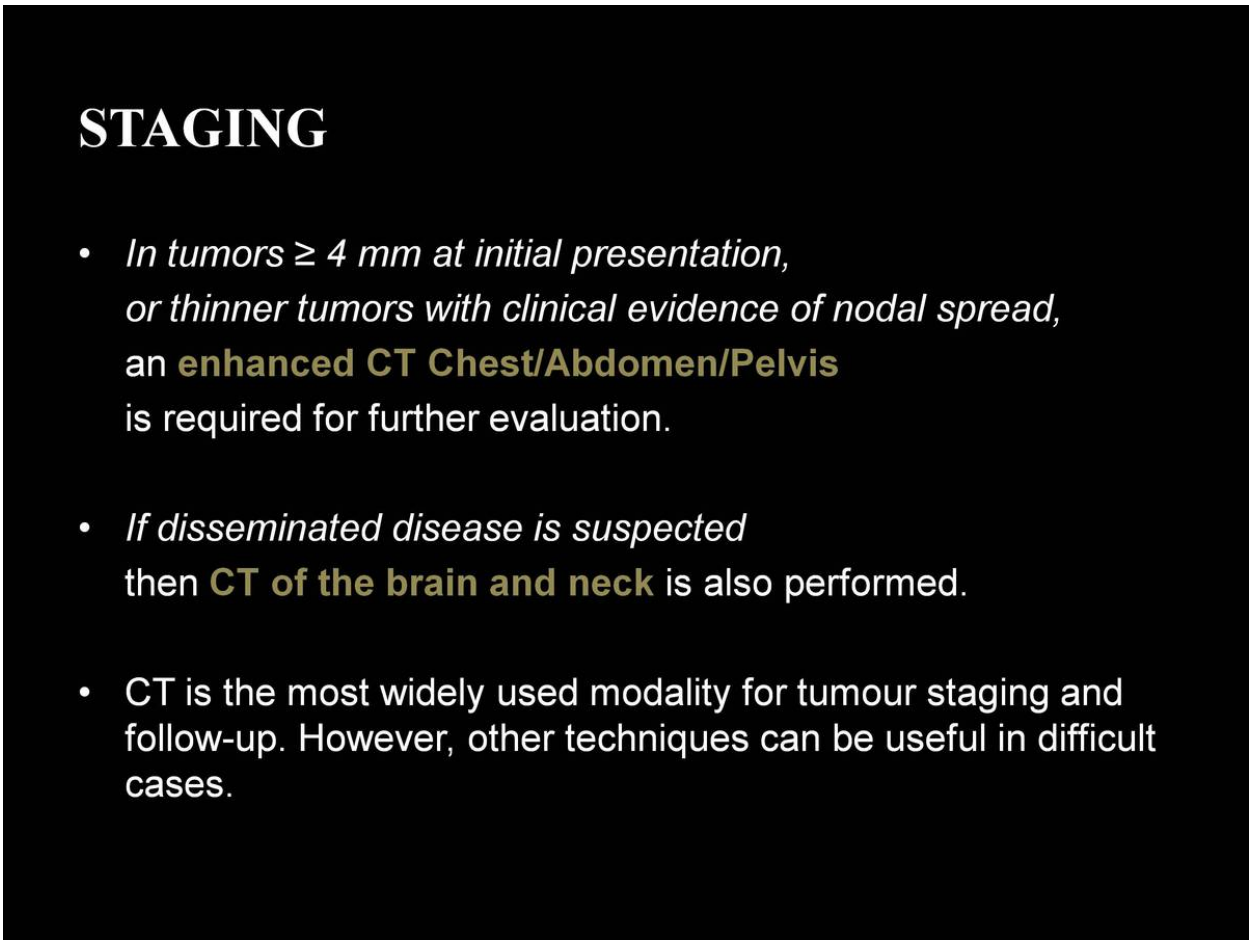

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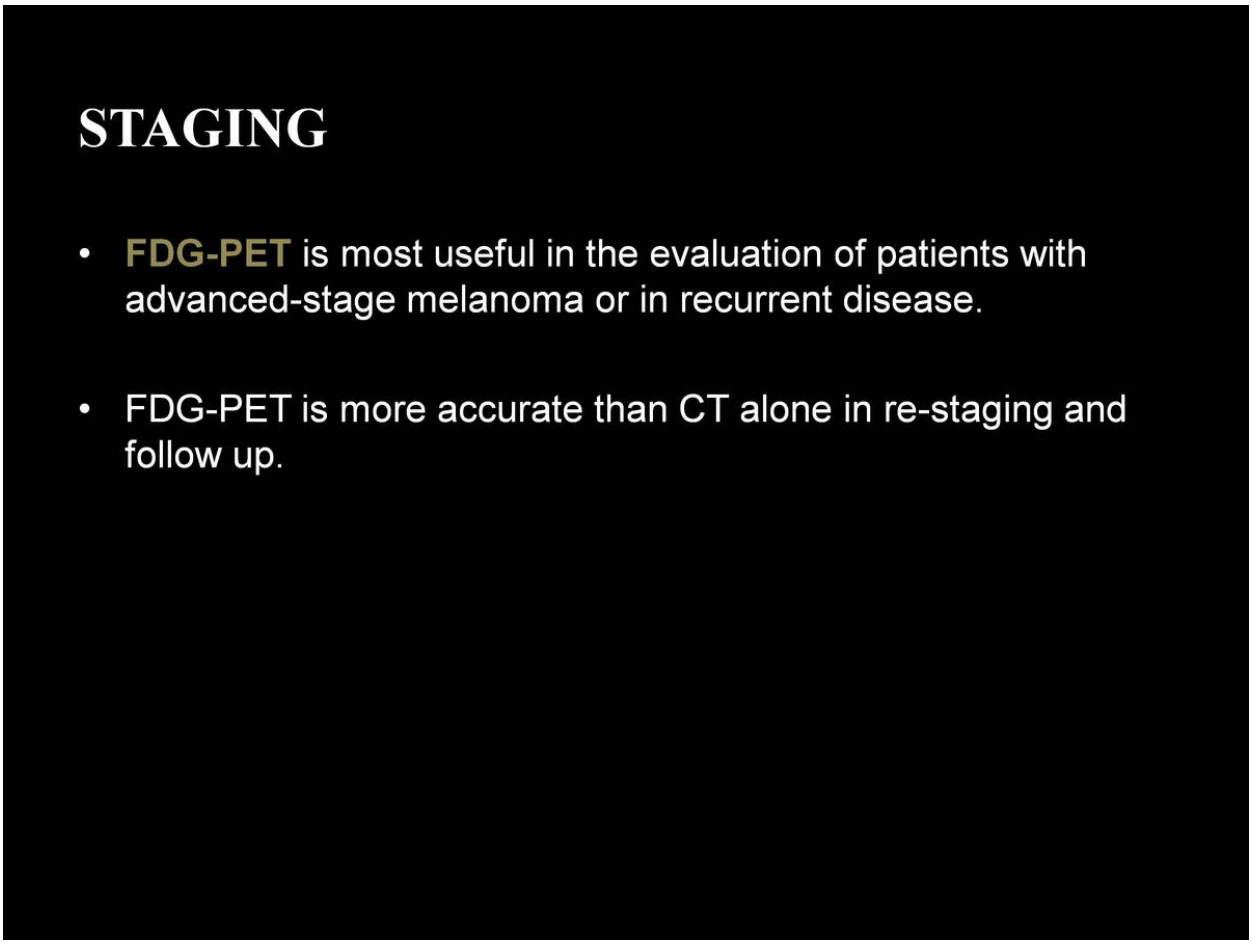

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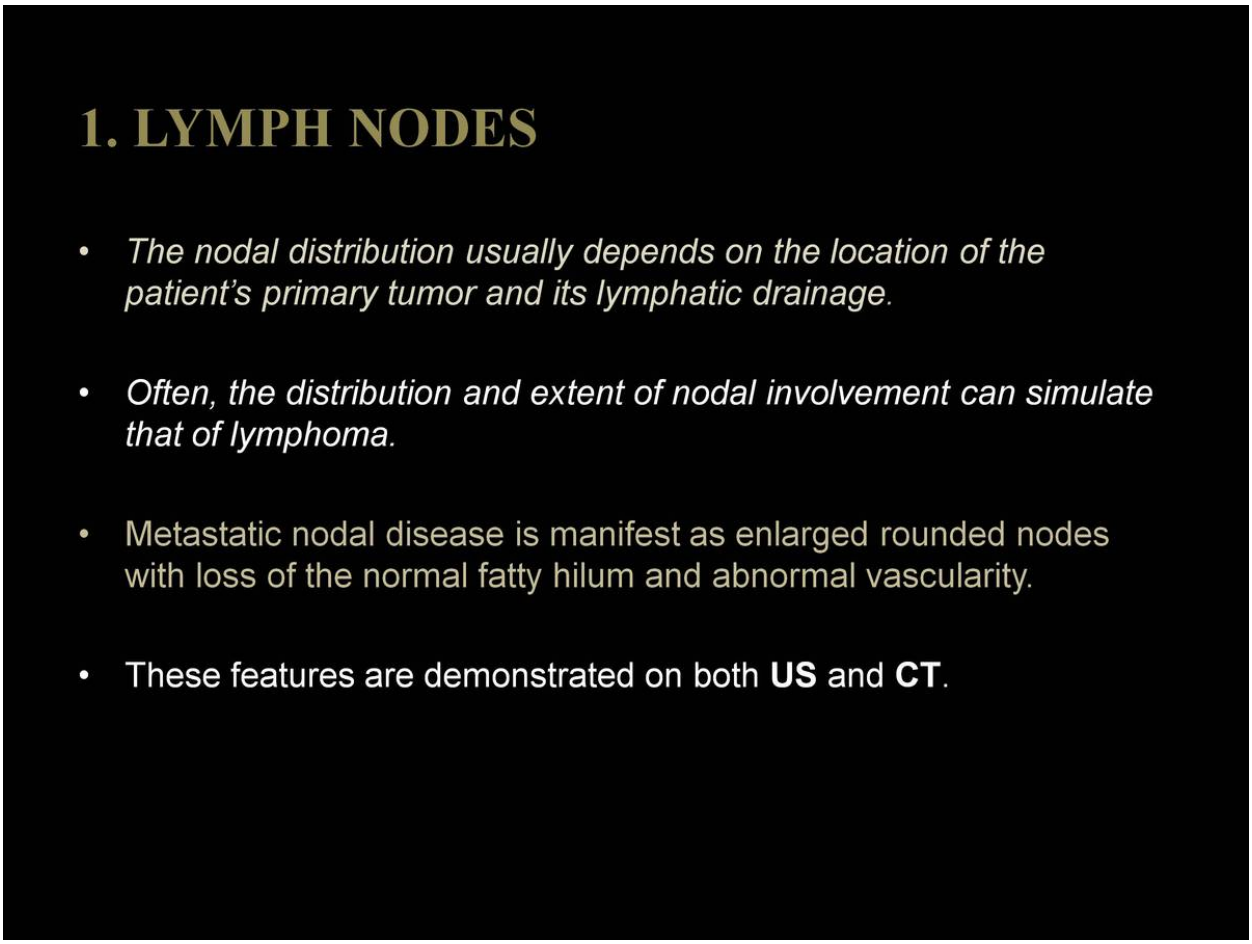
Imaging findings OR Procedure details



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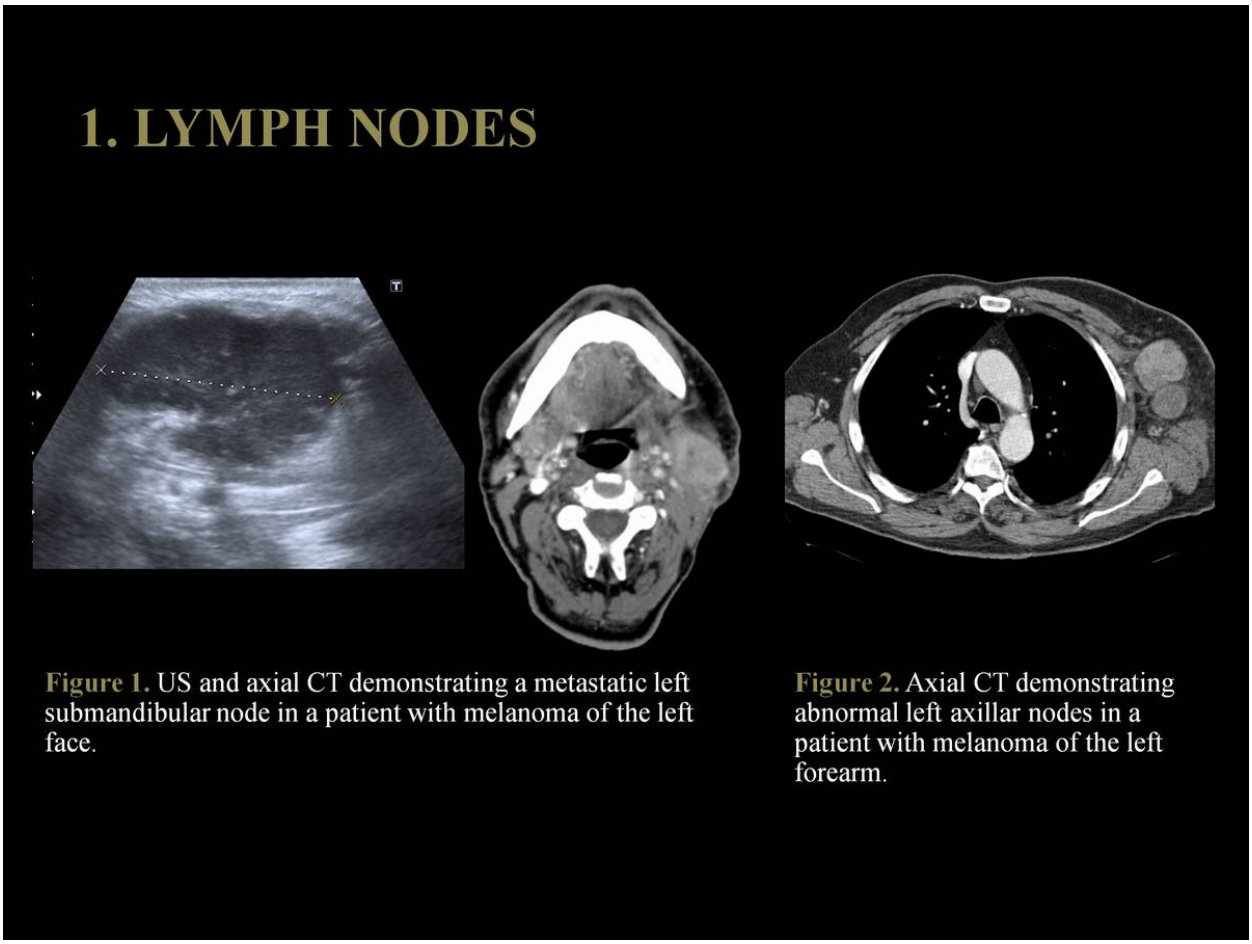

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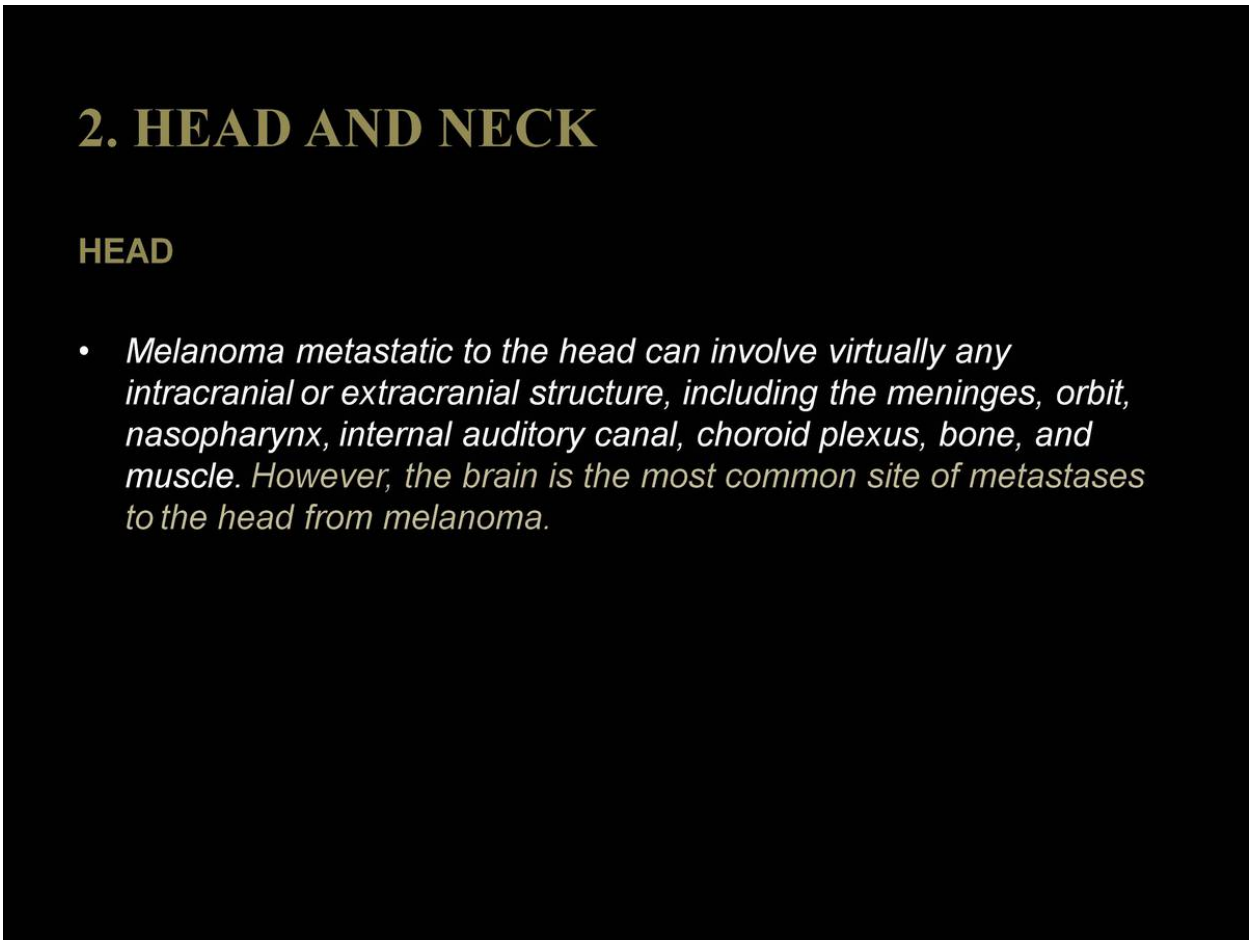

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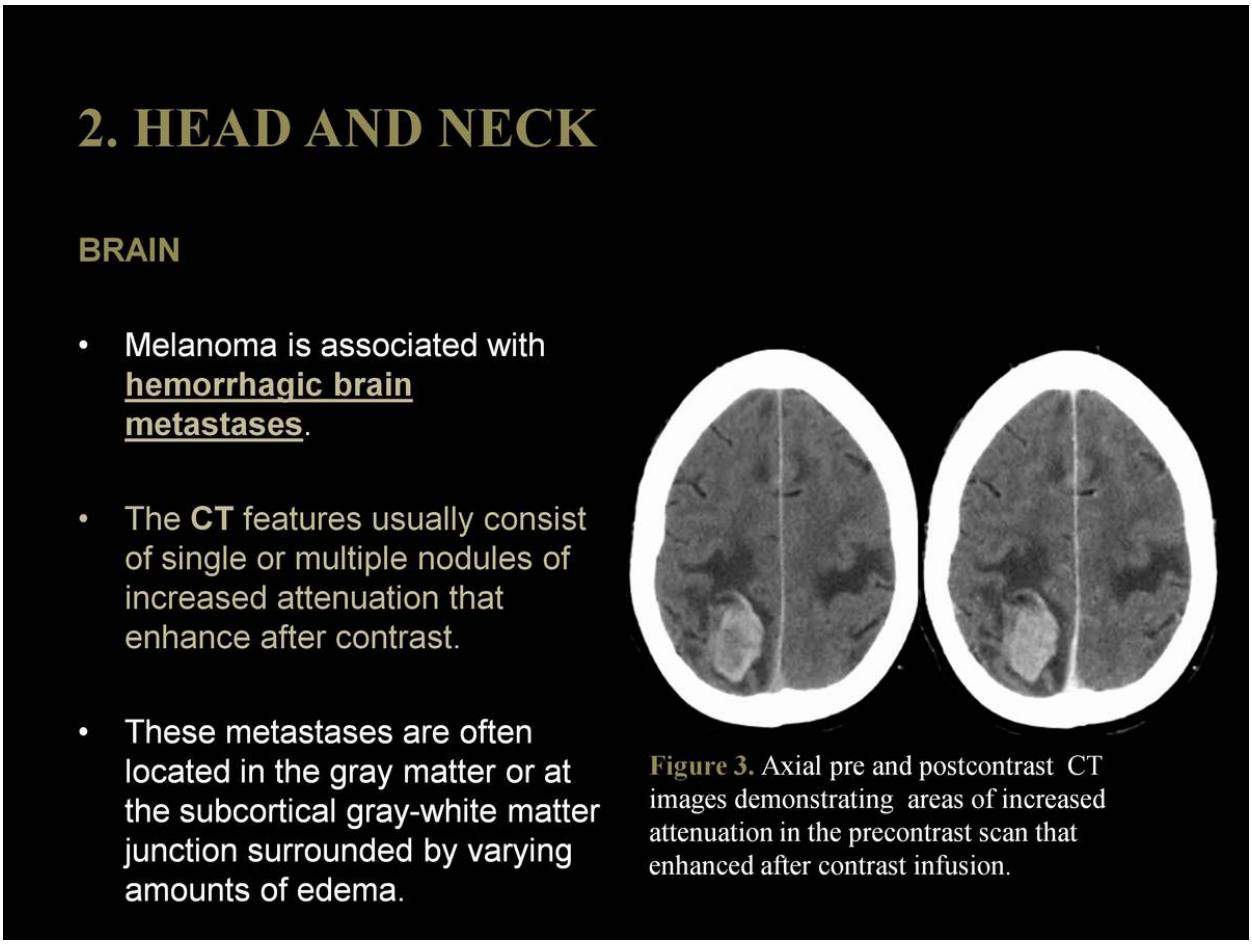

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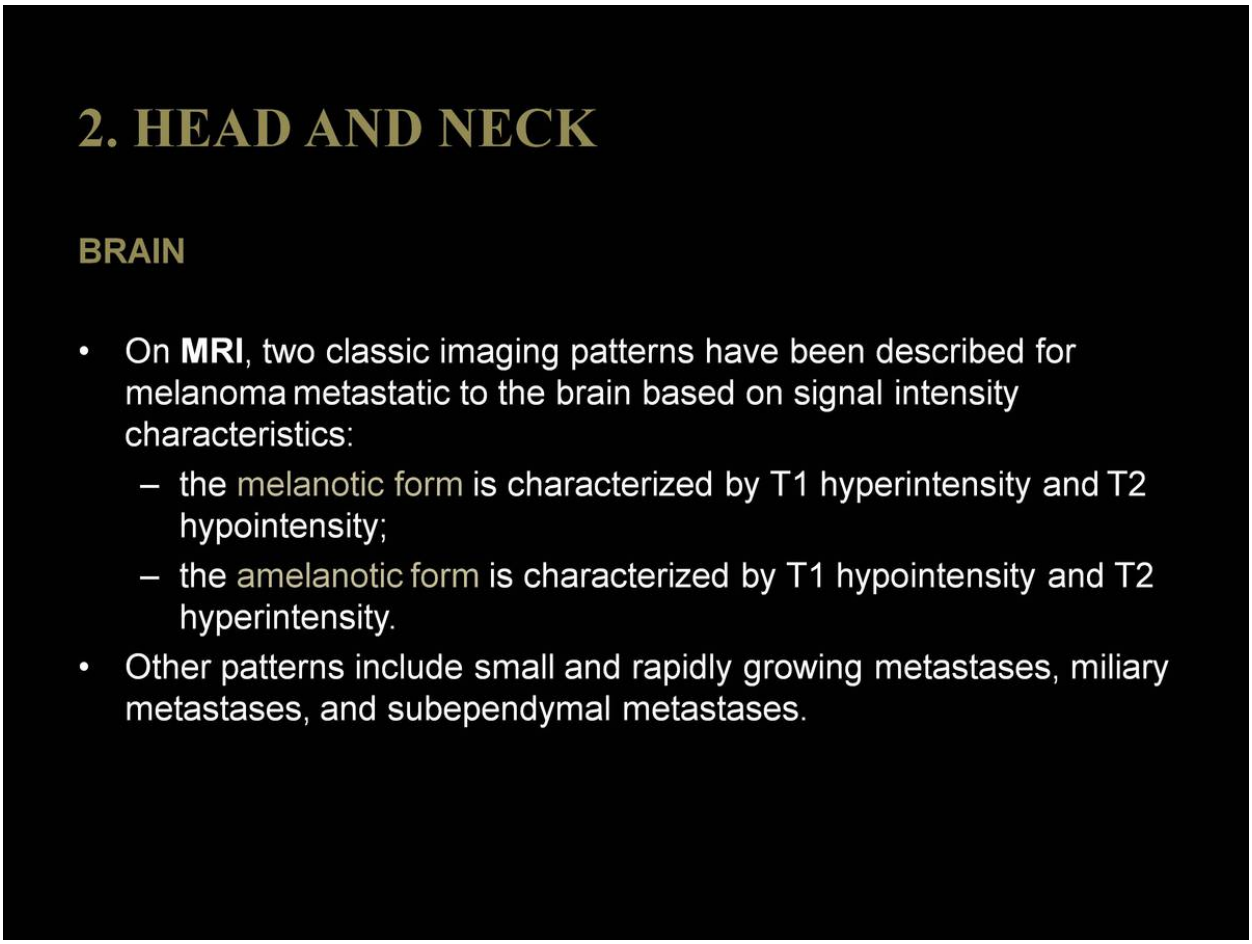

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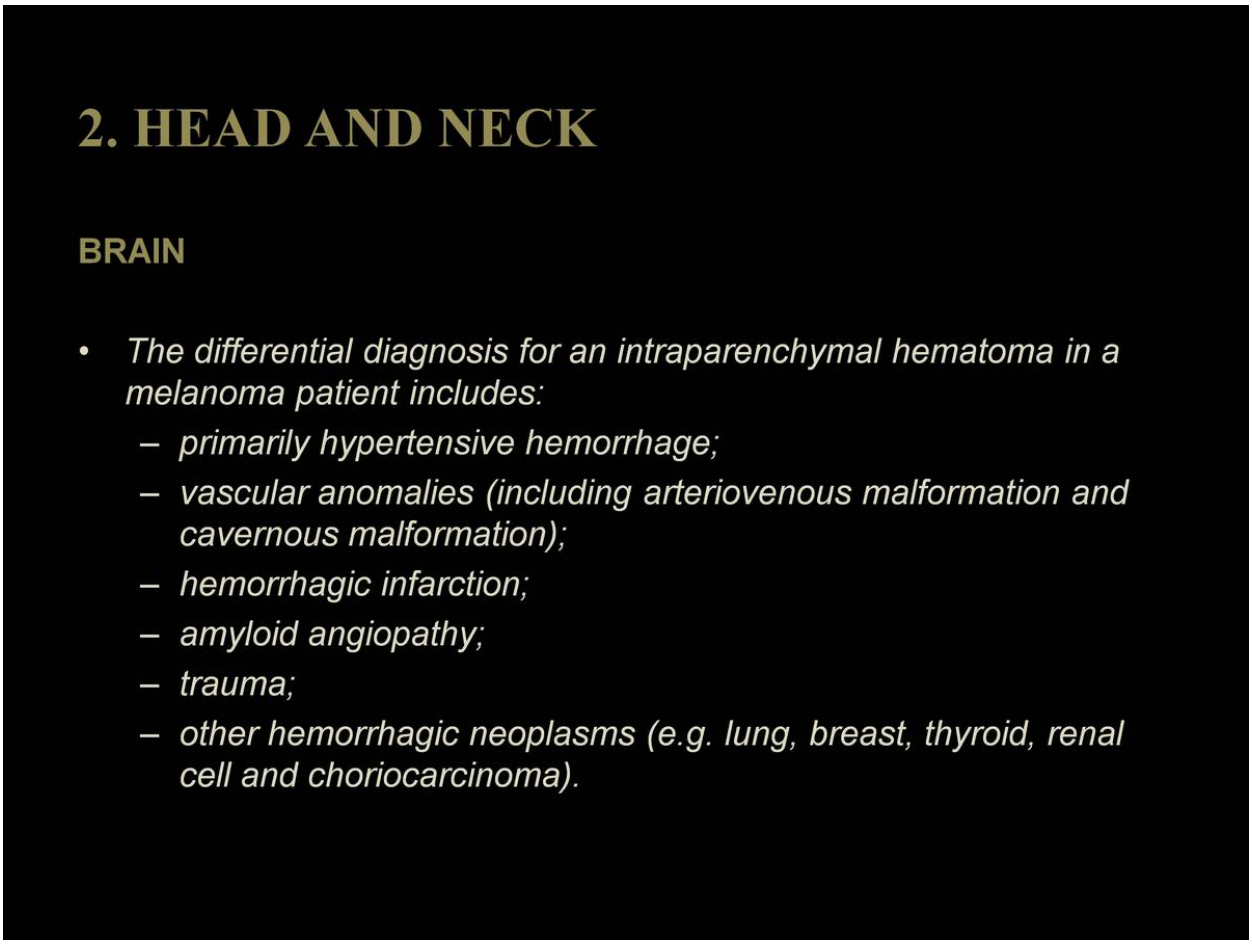

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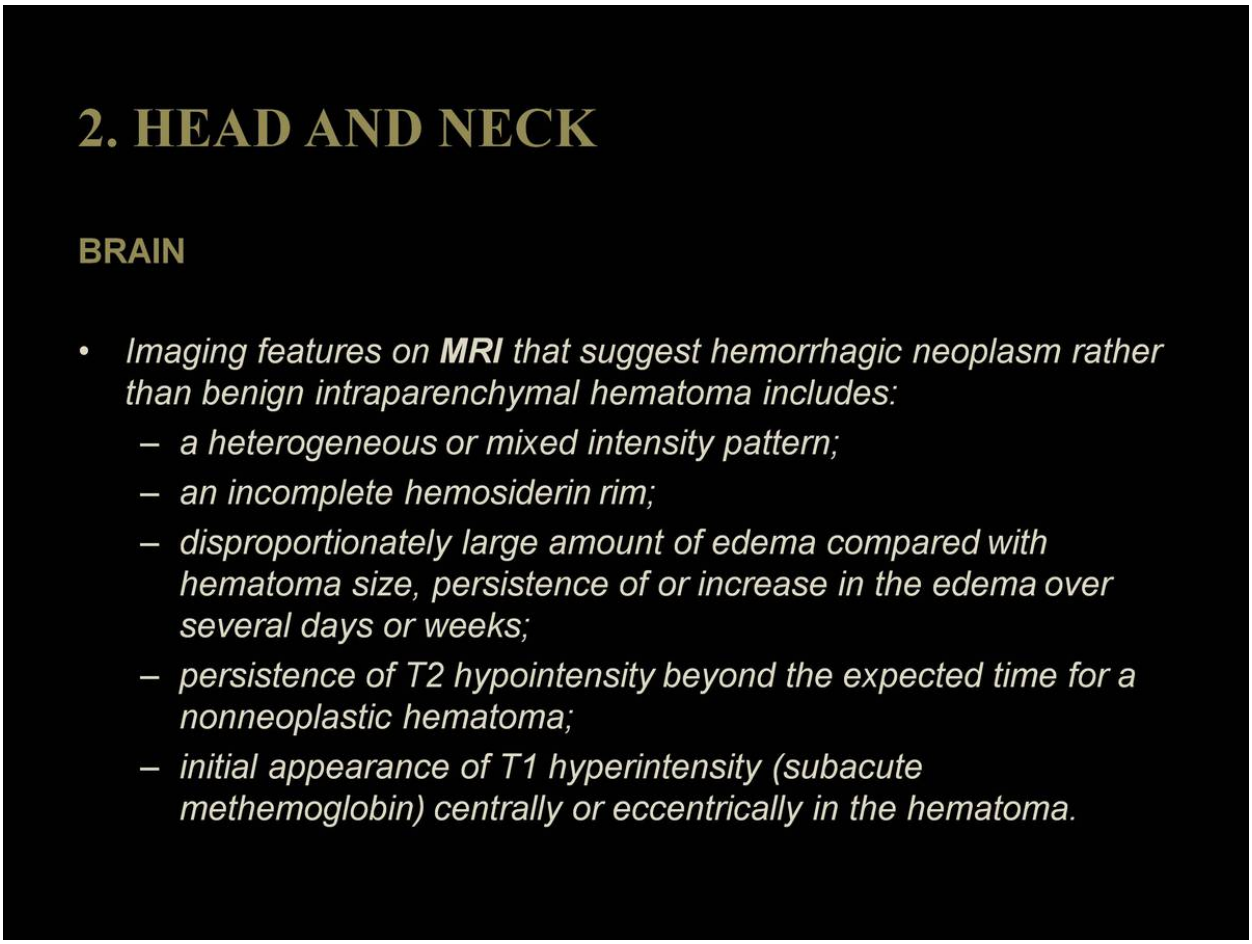

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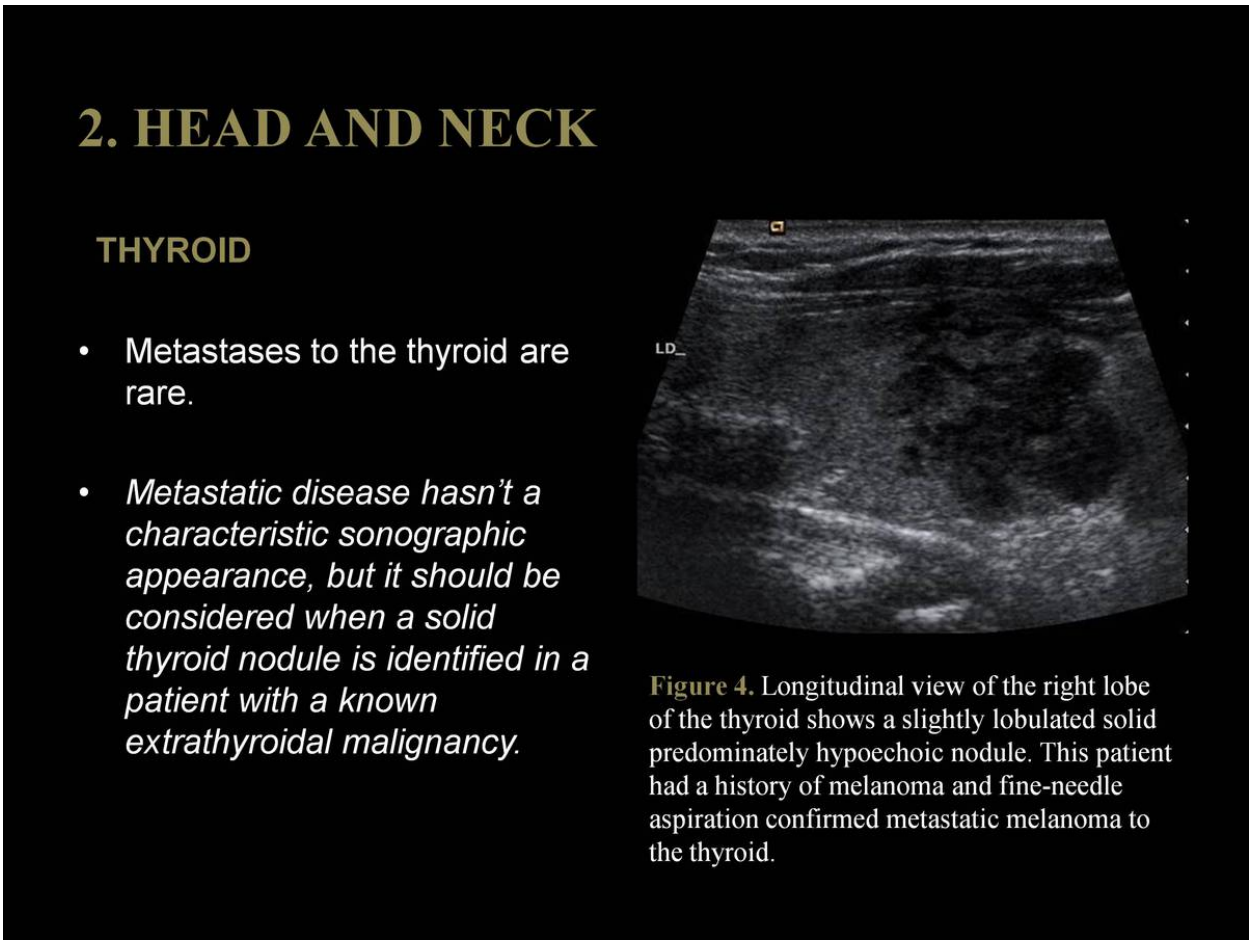

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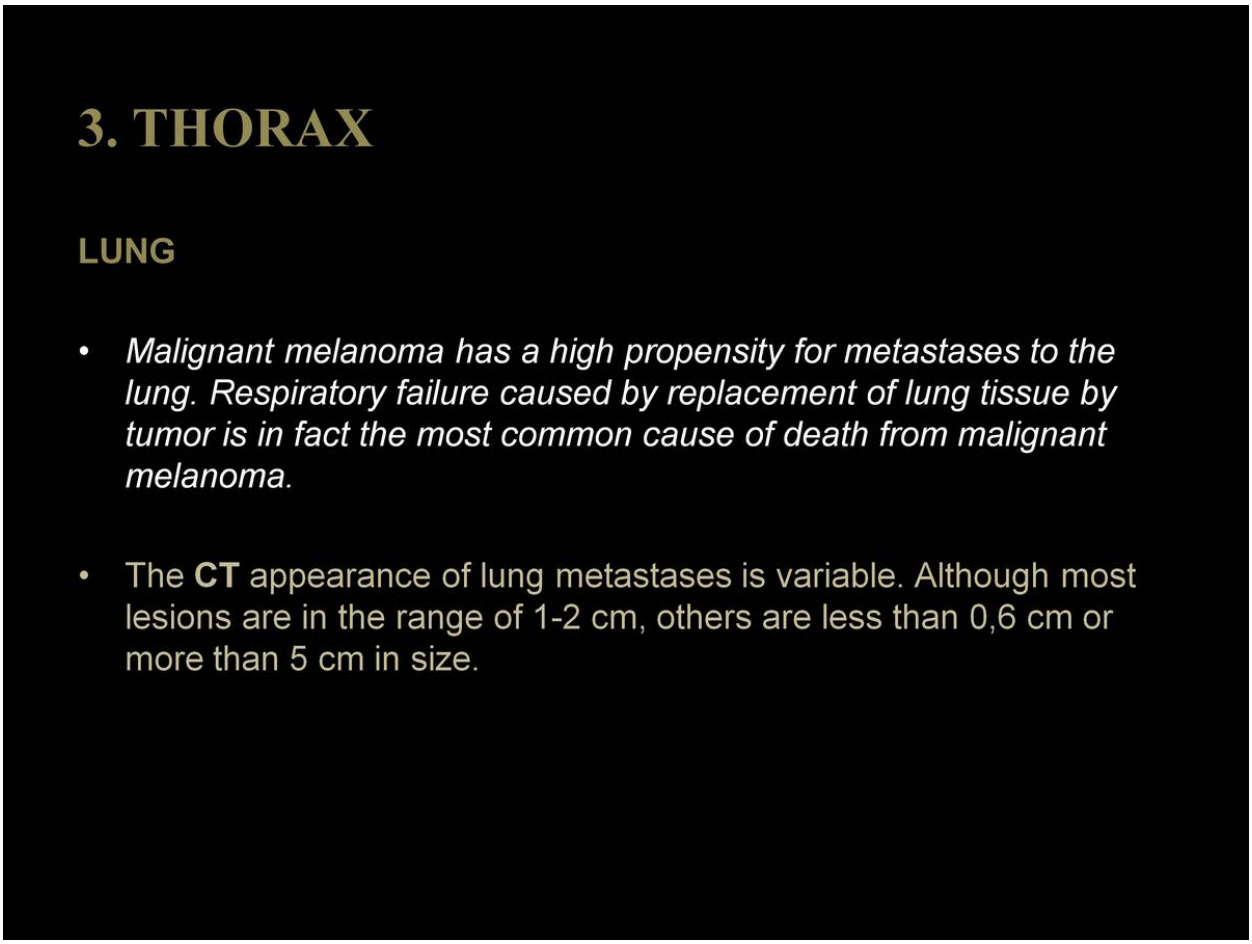

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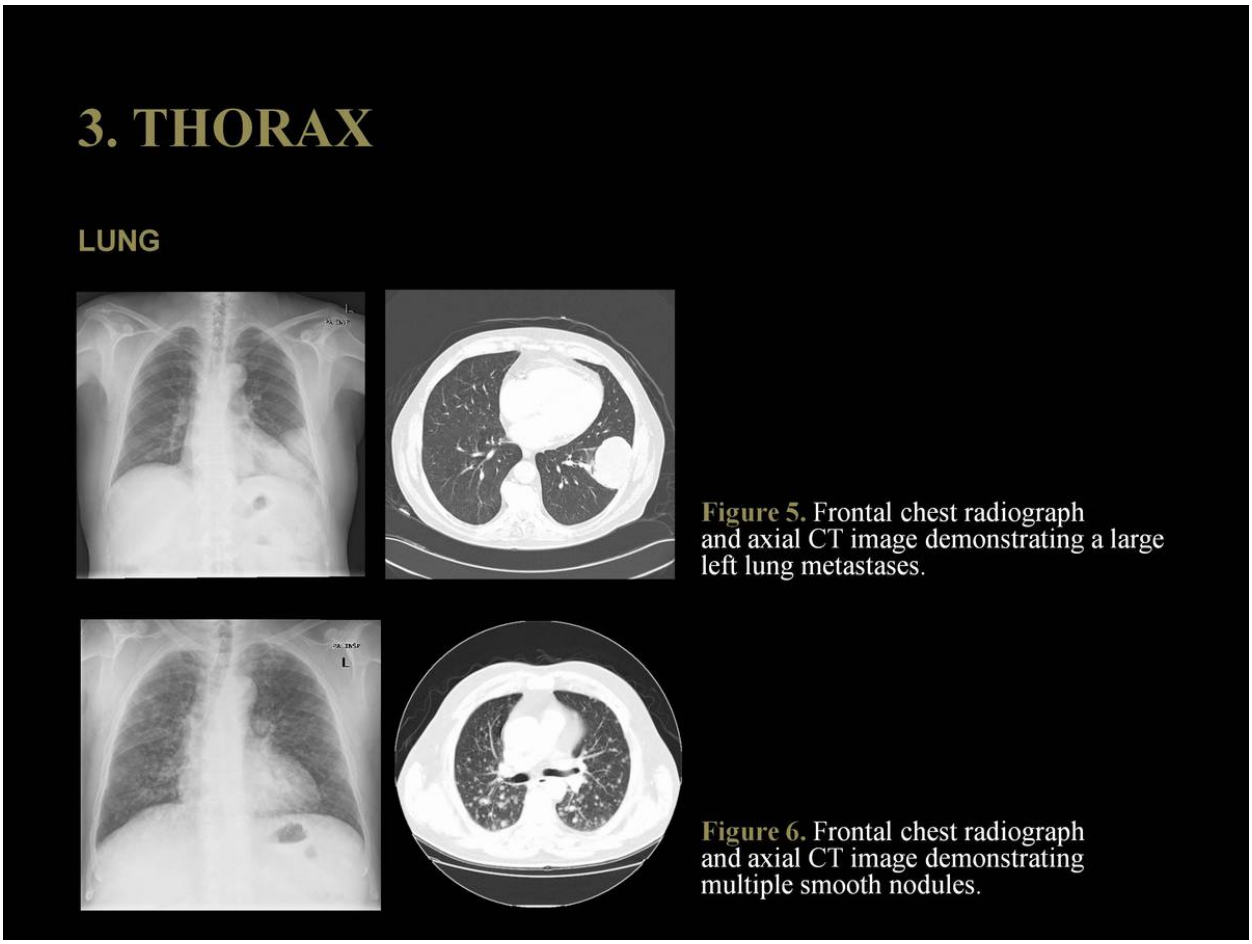

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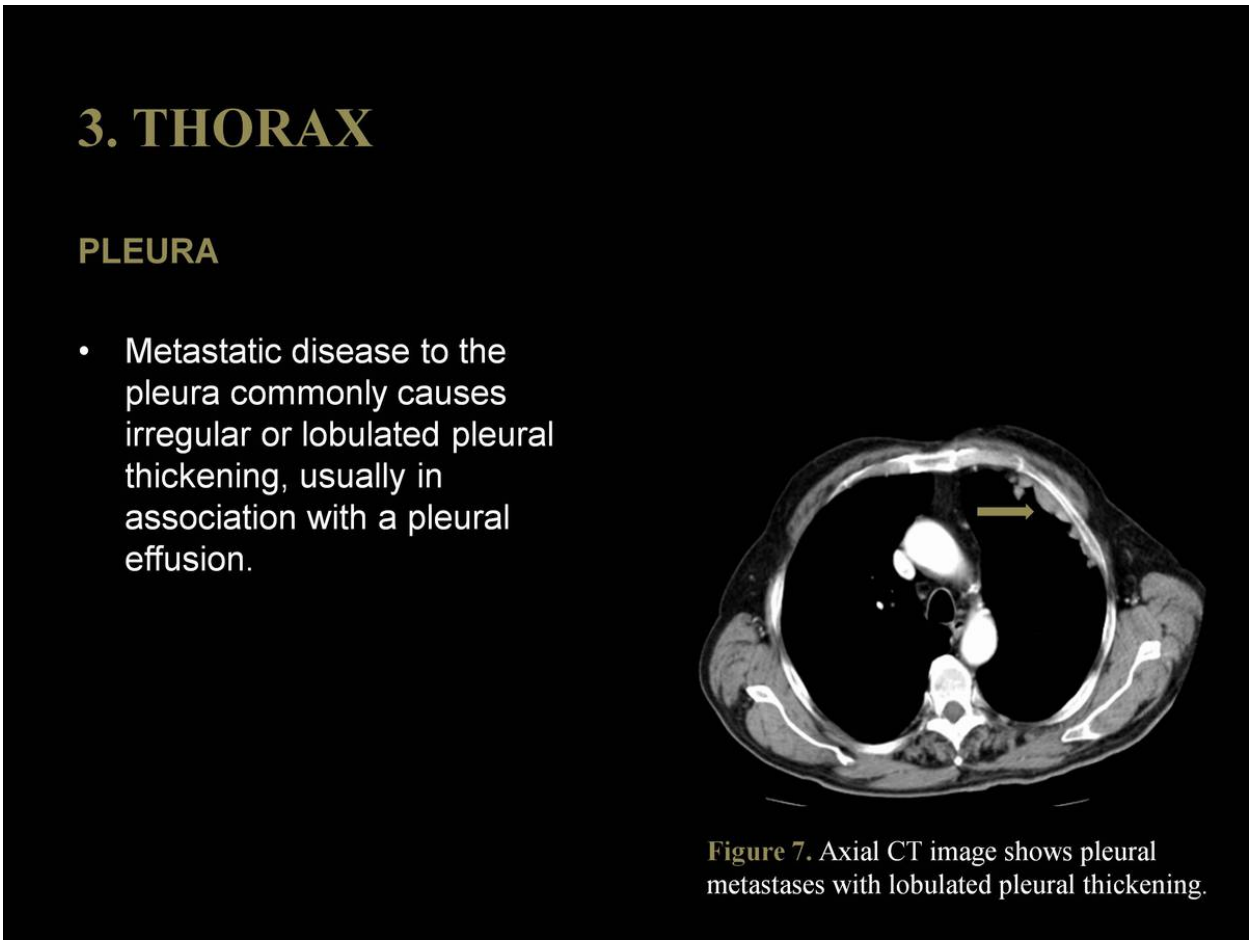

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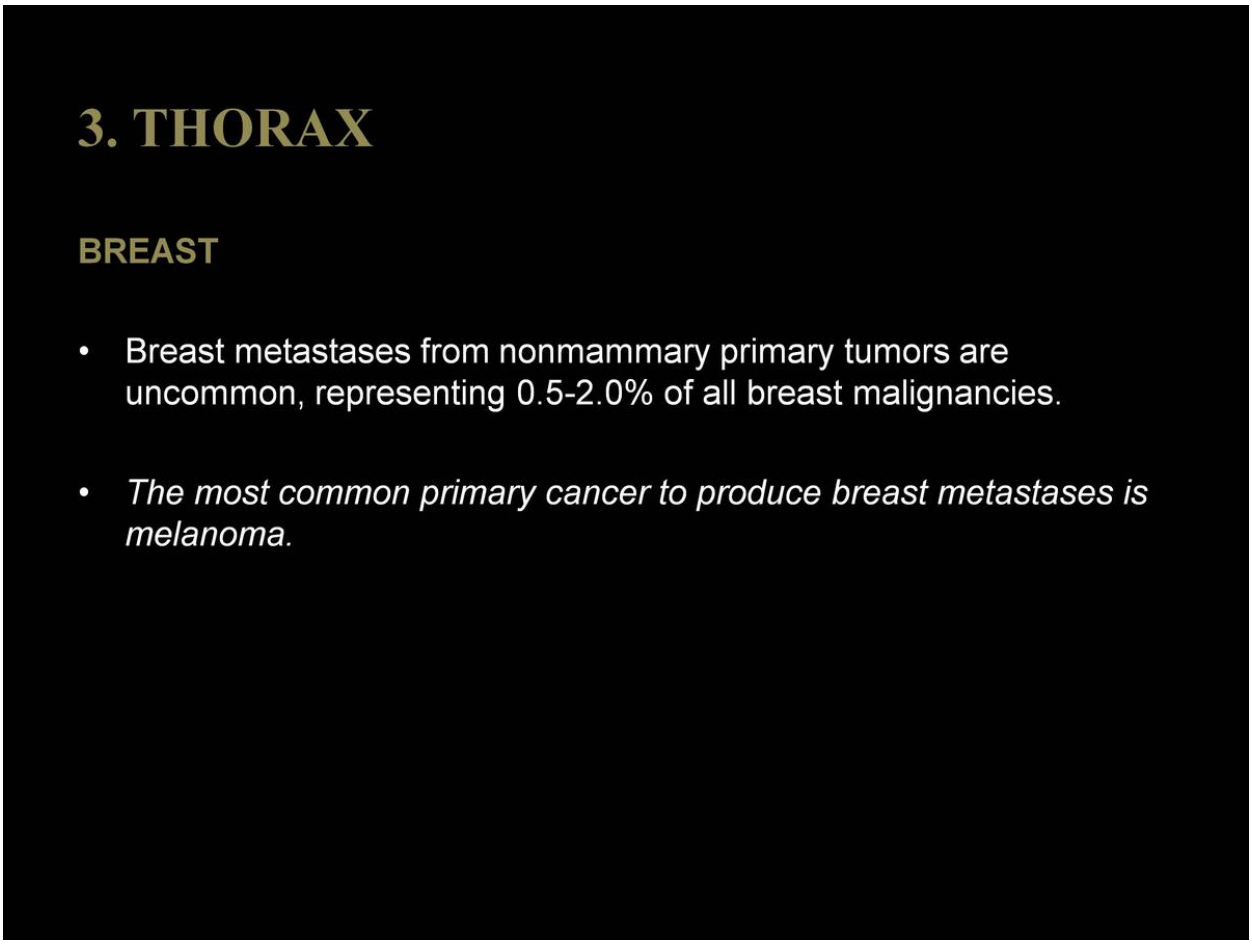

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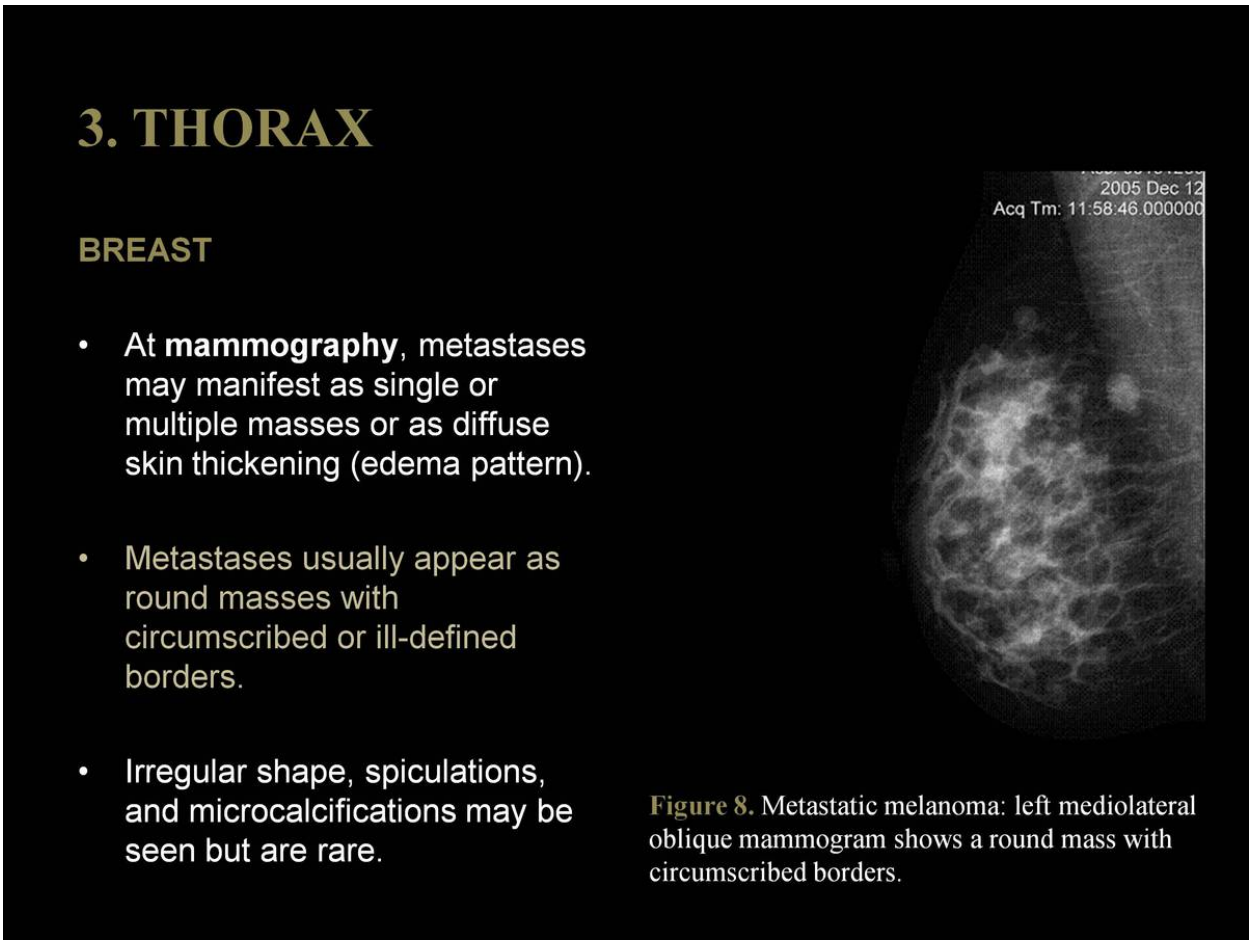

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3. THORAX

BREAST

- At **US**, metastases tend to have circumscribed margins with low-level internal echoes and, occasionally, posterior acoustic enhancement.

Figure 9. Metastatic melanoma: ultrasound image a hypoechoic nodule with circumscribed margins.

Fig.

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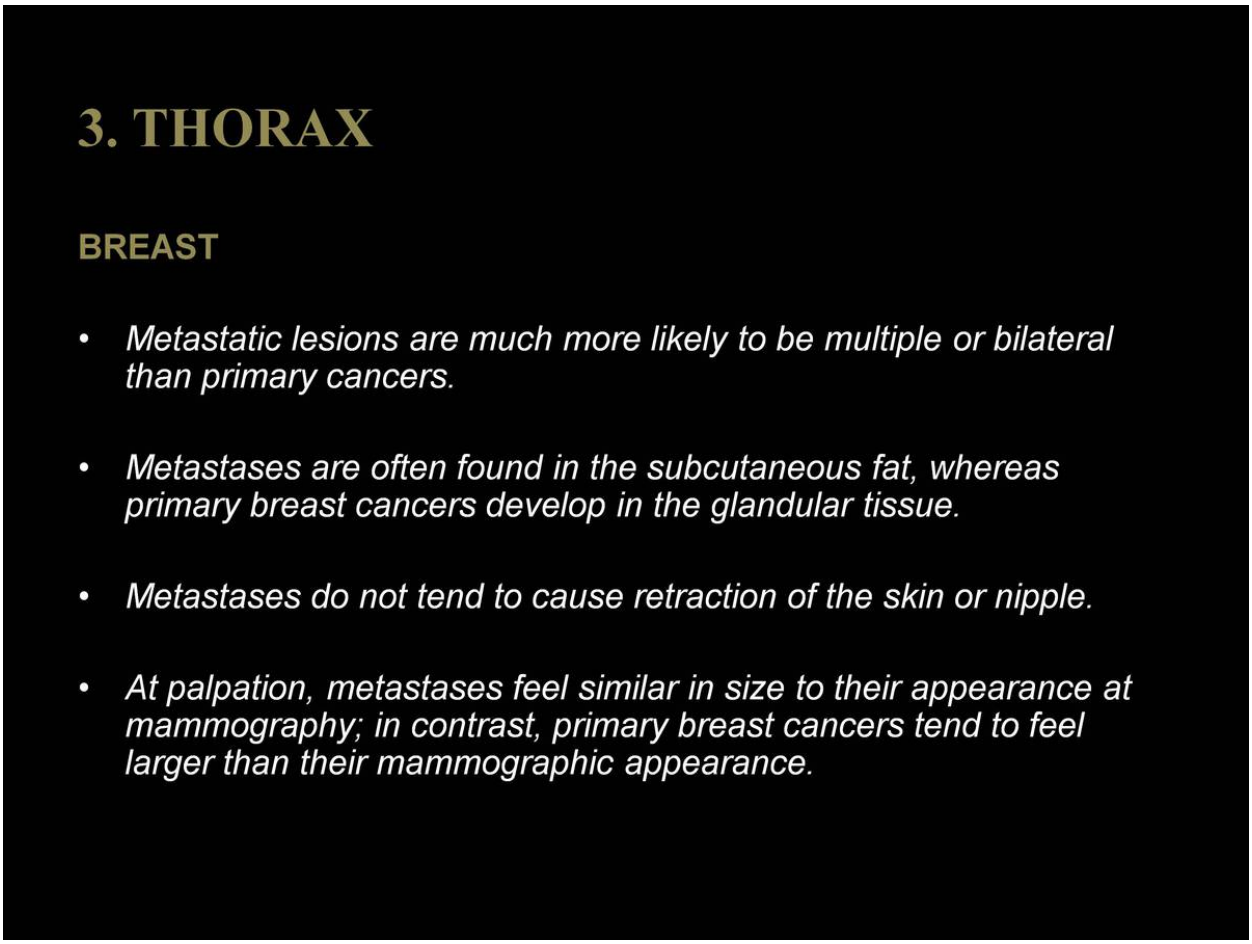

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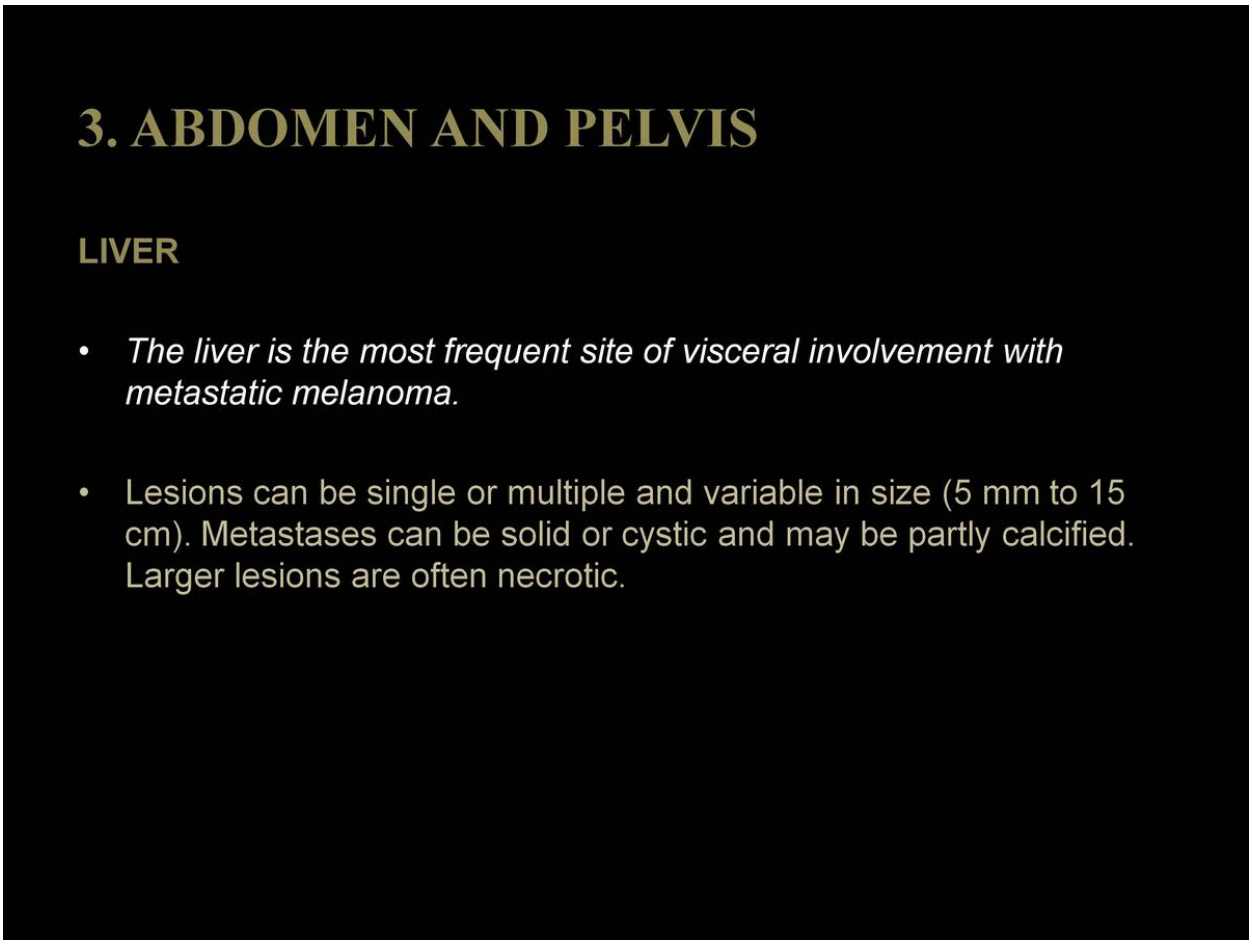

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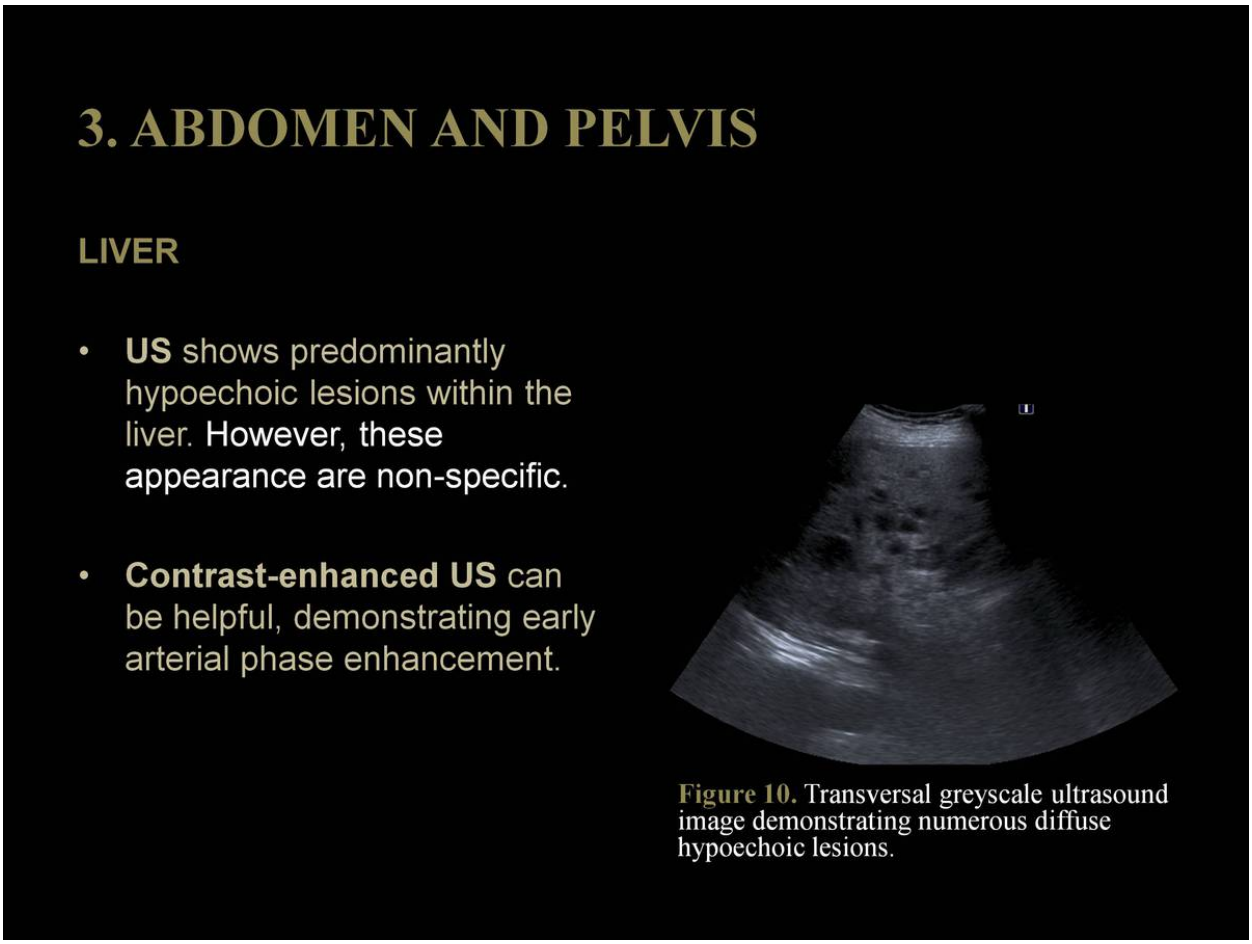

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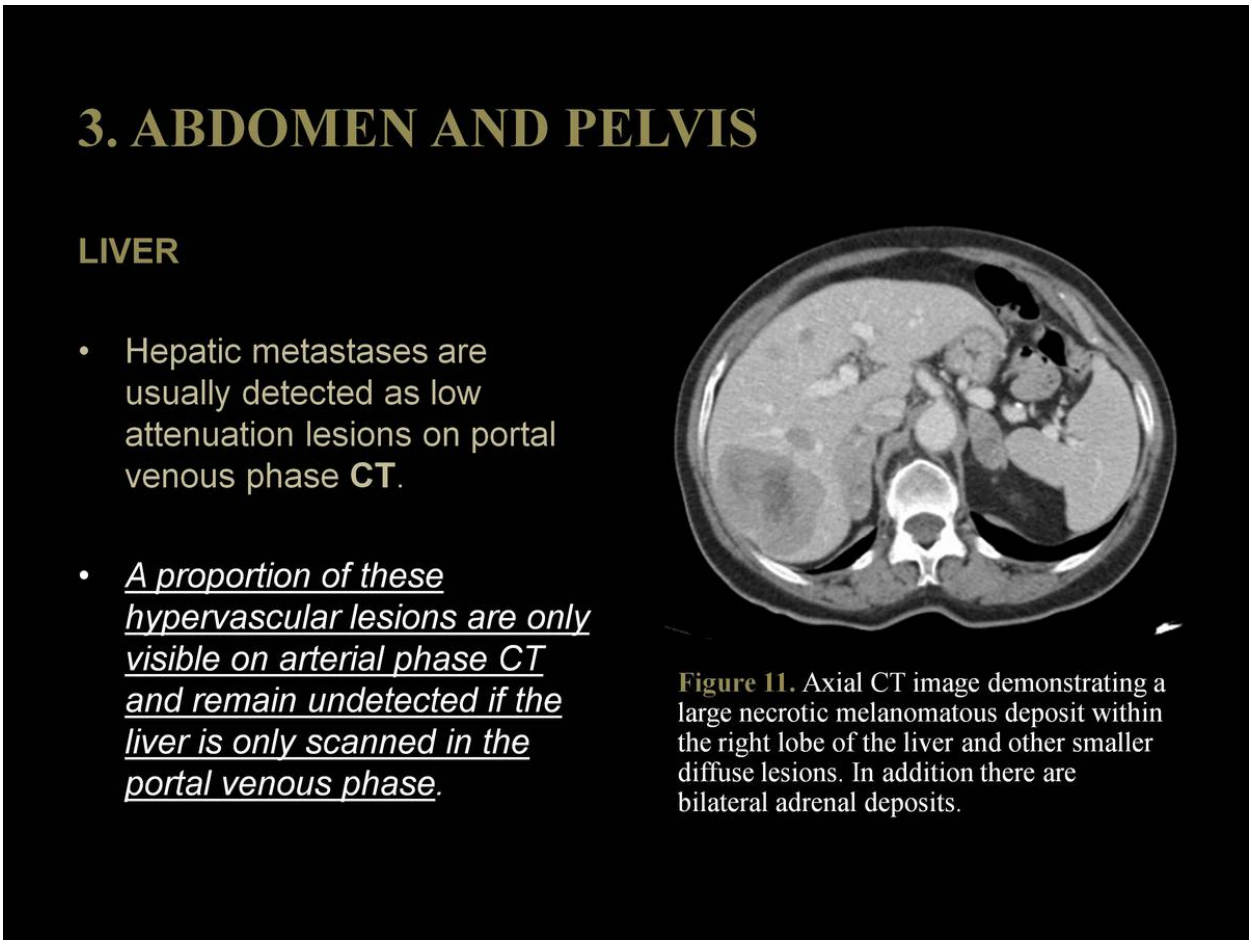

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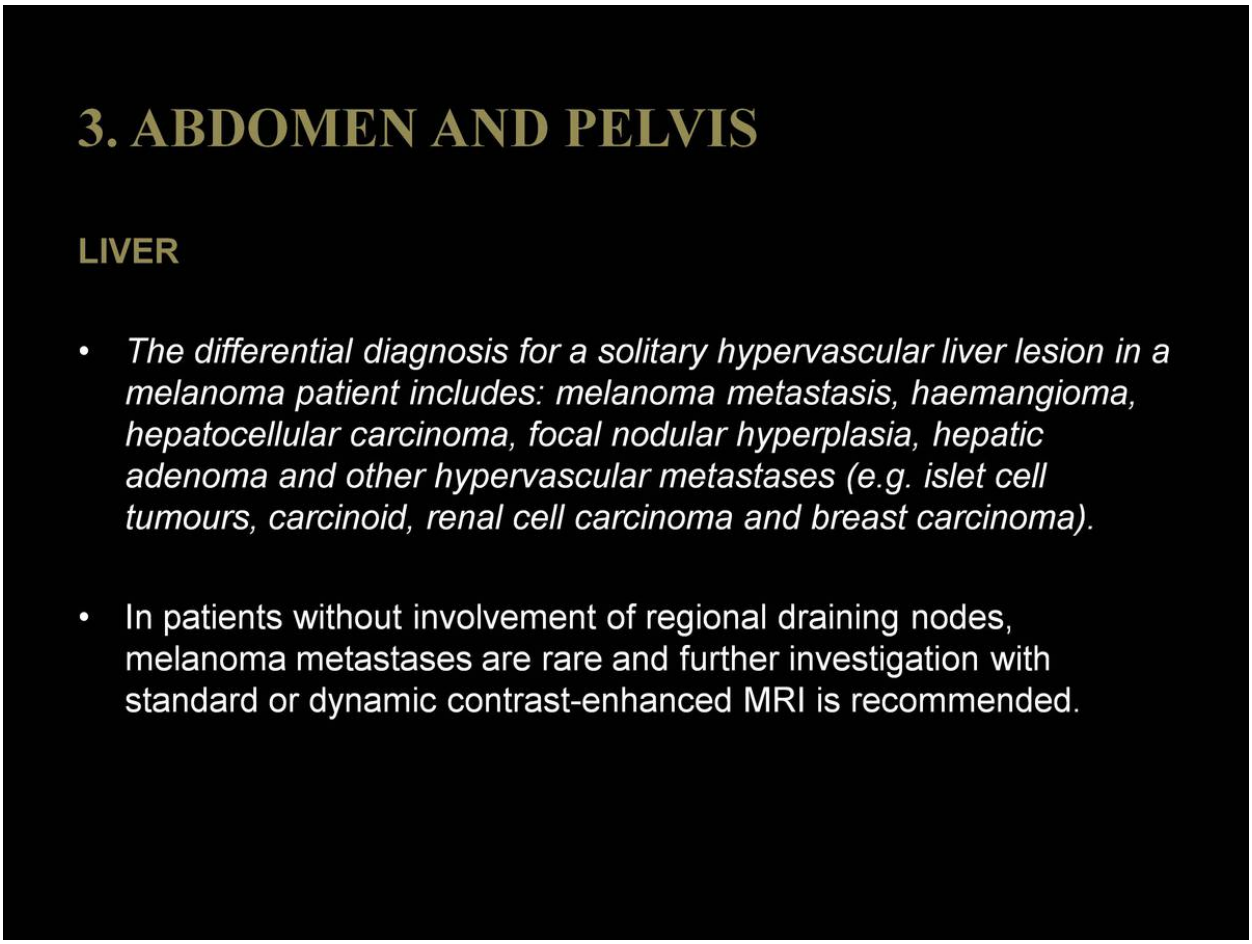

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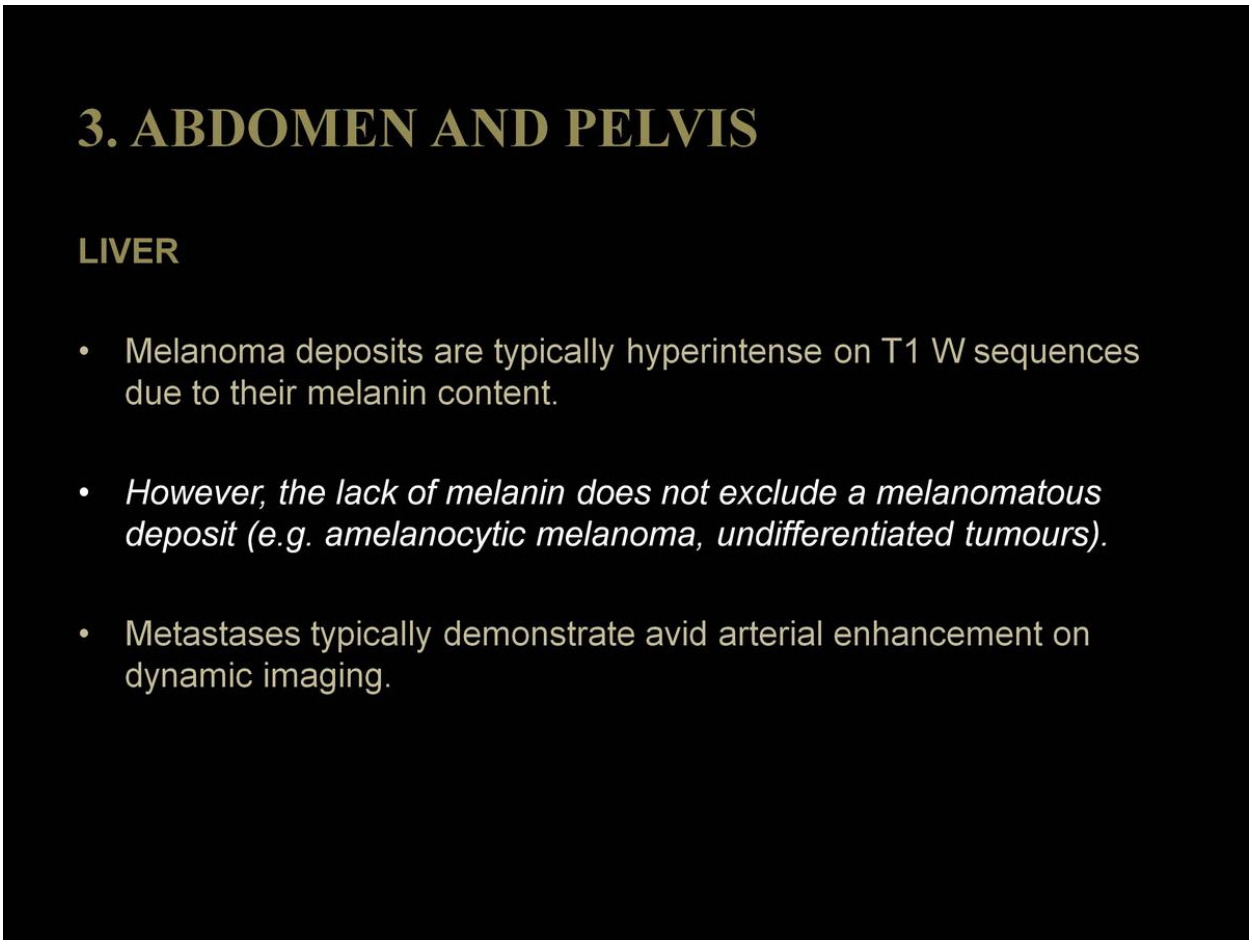

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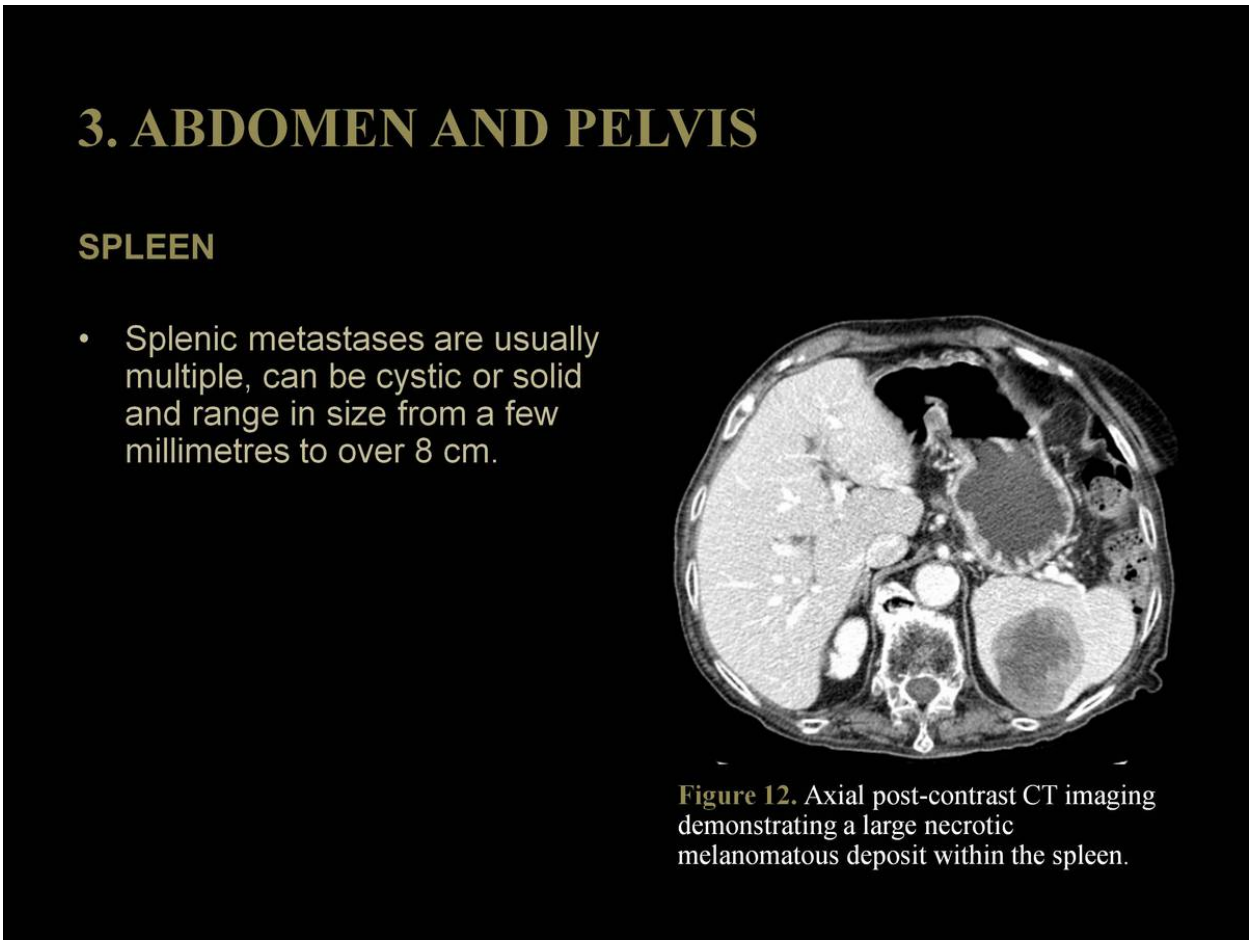

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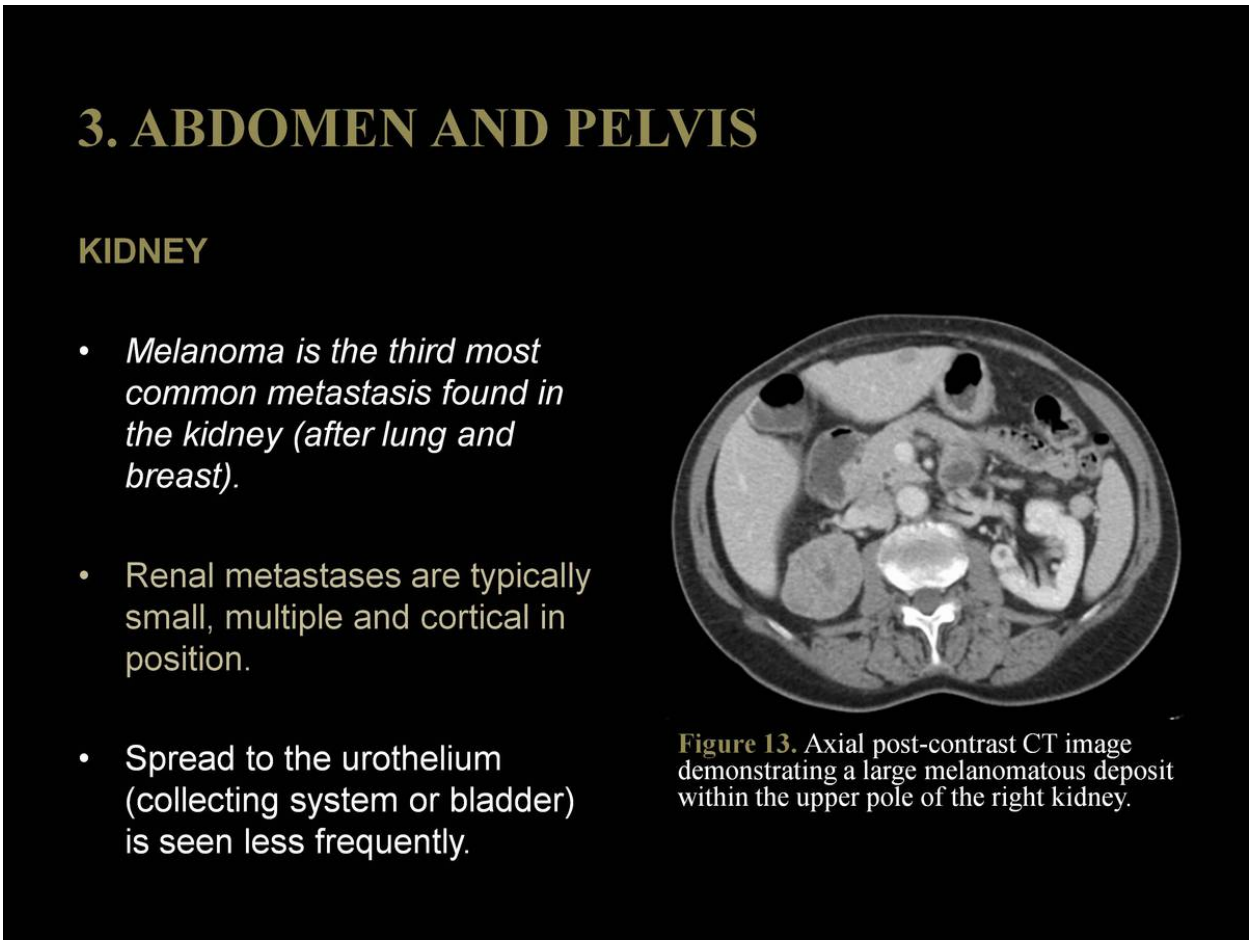

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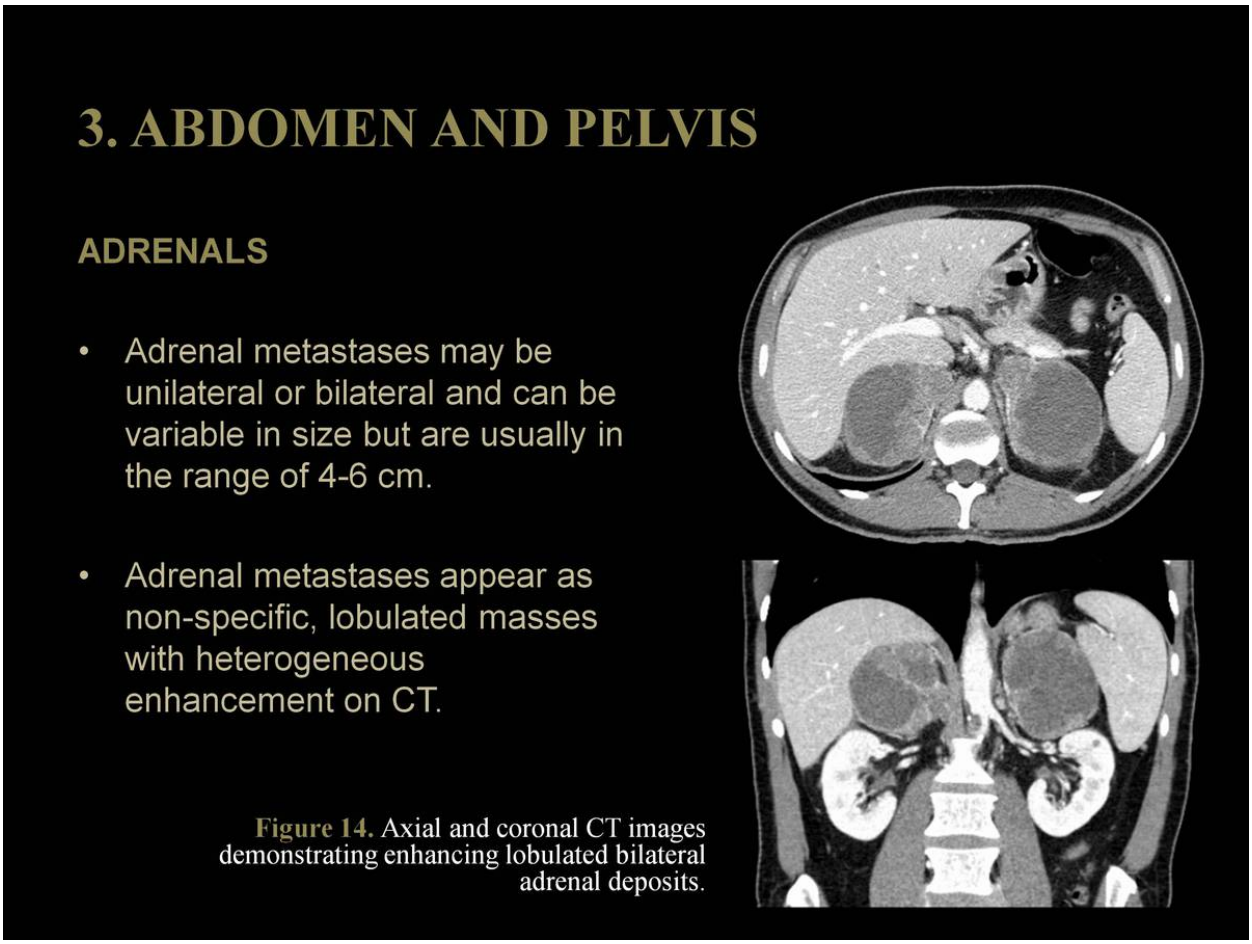

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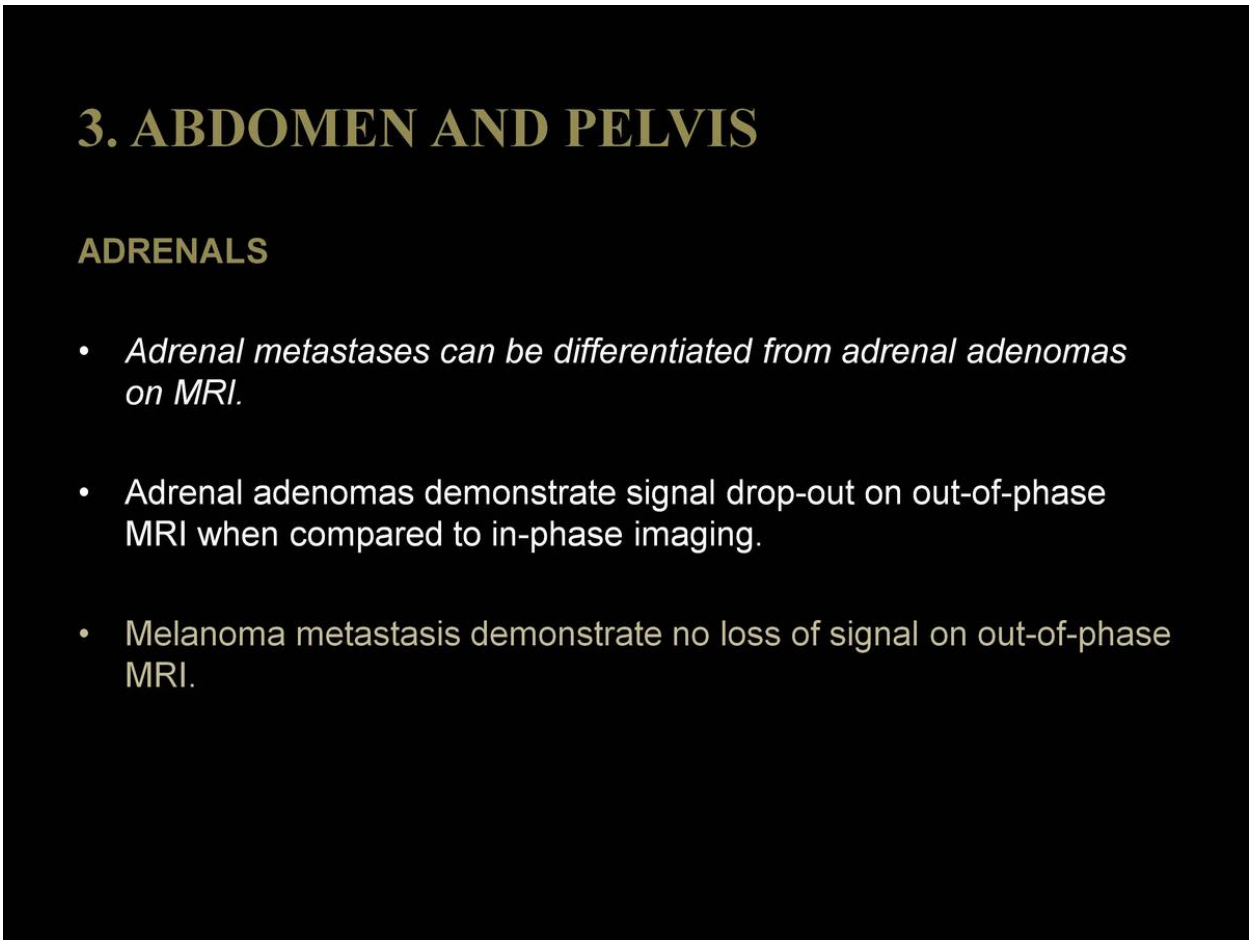

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3. ABDOMEN AND PELVIS

GALLBLADDER

- Metastatic involvement of the gallbladder in melanoma is rare, but constitutes the most common metastatic lesion involving this organ.

- *The differential diagnosis includes adenomatous, hyperplastic, and cholesterol polyps; carcinoid tumor, gallbladder carcinoma and a hematoma within the gallbladder.*

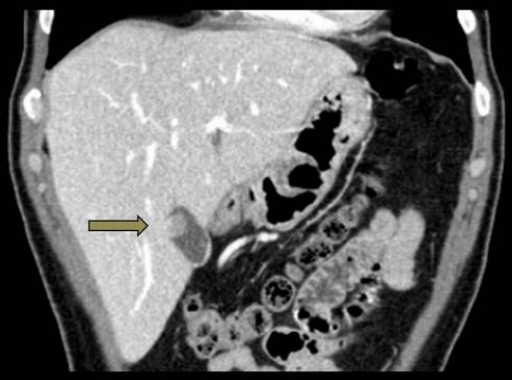

Figure 15. Coronal CT image demonstrating a polypoid mass within the gallbladder.

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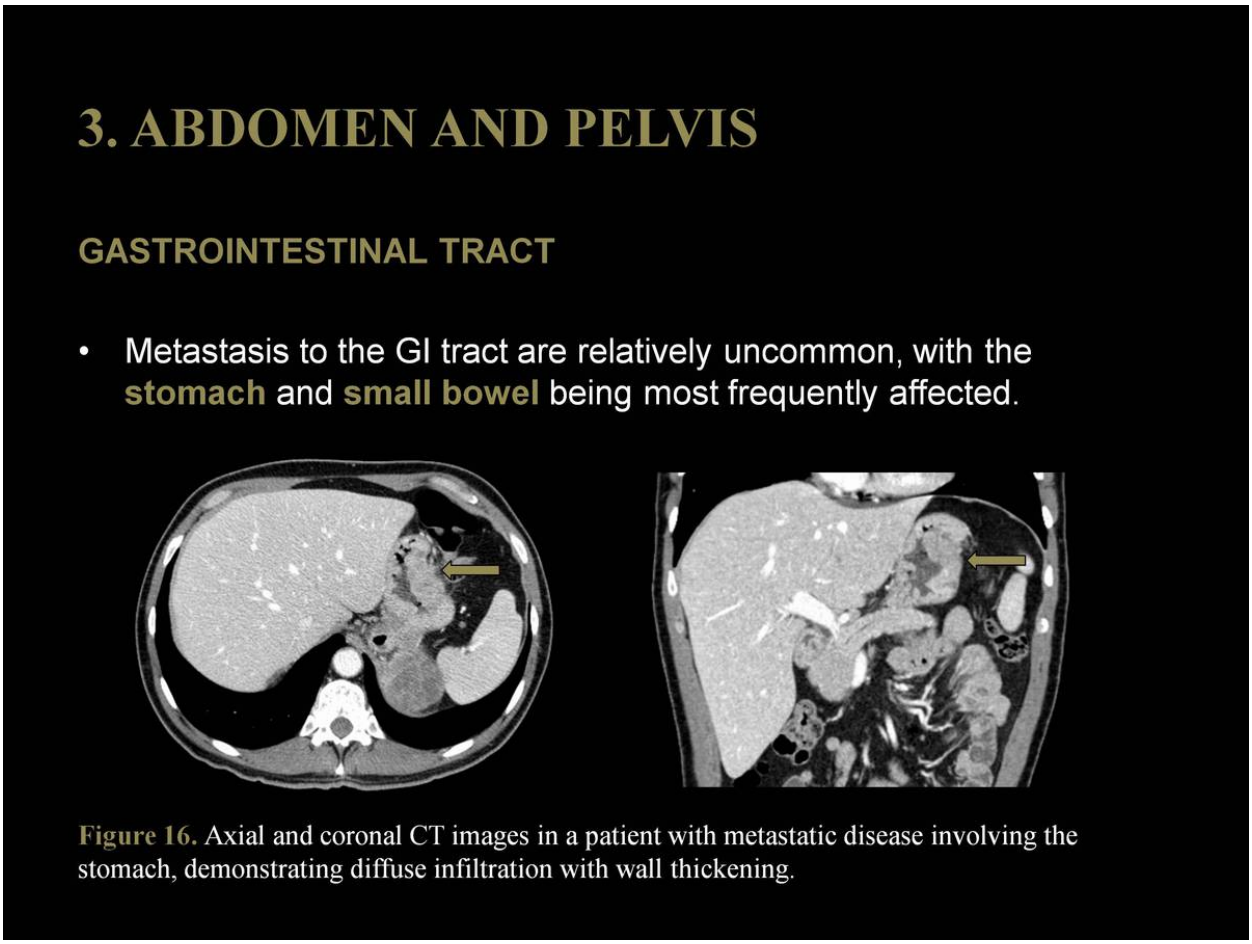

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3. ABDOMEN AND PELVIS

SMALL BOWEL

- *The lesions are more common in the distal jejunum or ileum than in the proximal small bowel.*
- Metastases classically manifest as enhancing mural nodules protruding into the intestinal lumen or as focal thickening of the intestinal wall.
- Small bowel metastases can act as a lead point for intussusception, cause obstruction or haemorrhage.

Figure 17. Axial post-contrast CT image demonstrating a small bowel metastase acting as a lead point for intussusception.

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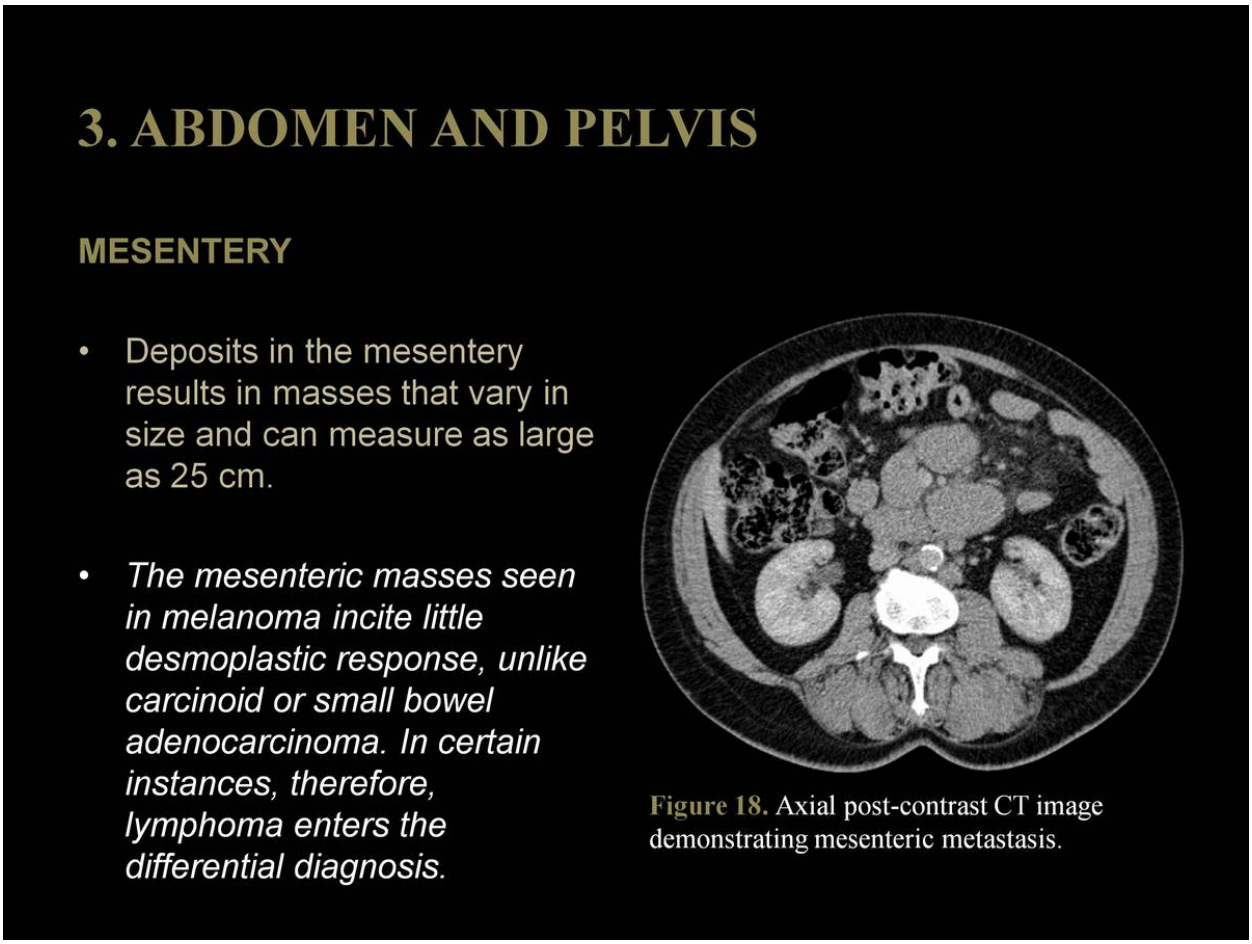

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3. ABDOMEN AND PELVIS

PERITONEUM

- The preferential sites for tumor implantation are the pelvic cul-de-sac, right paracolic gutter, and the greater omentum.
- CT demonstrates tumor nodules on peritoneal surfaces which displace bowel away from the anterior abdominal wall, tumor nodules in the mesentery, thickening and nodularity of the bowel wall owing to serosal implants, and ascites that is commonly loculated.

Figure 19. Axial post-contrast CT image shows solid tumor implanted on the omentum creating "omental cake".

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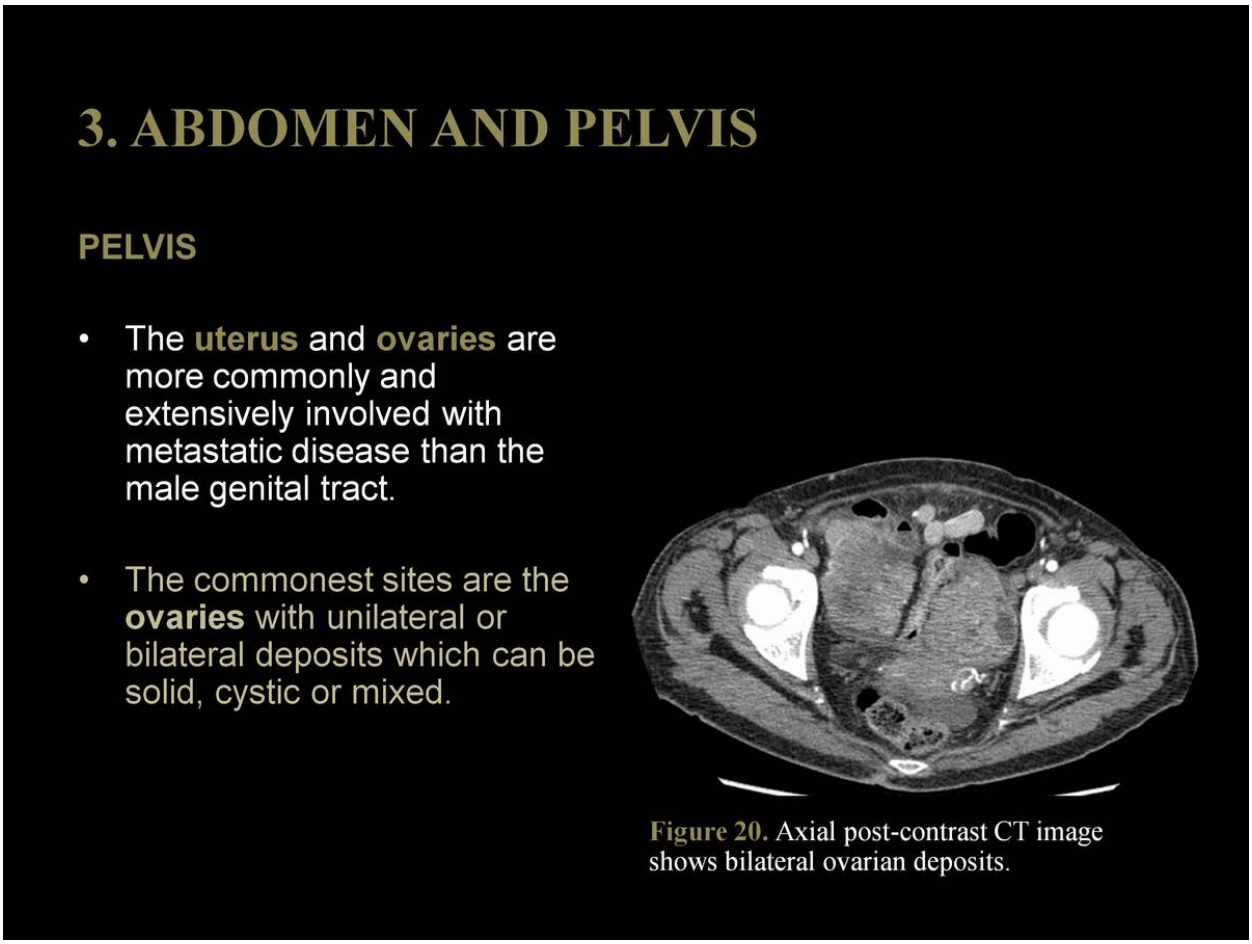

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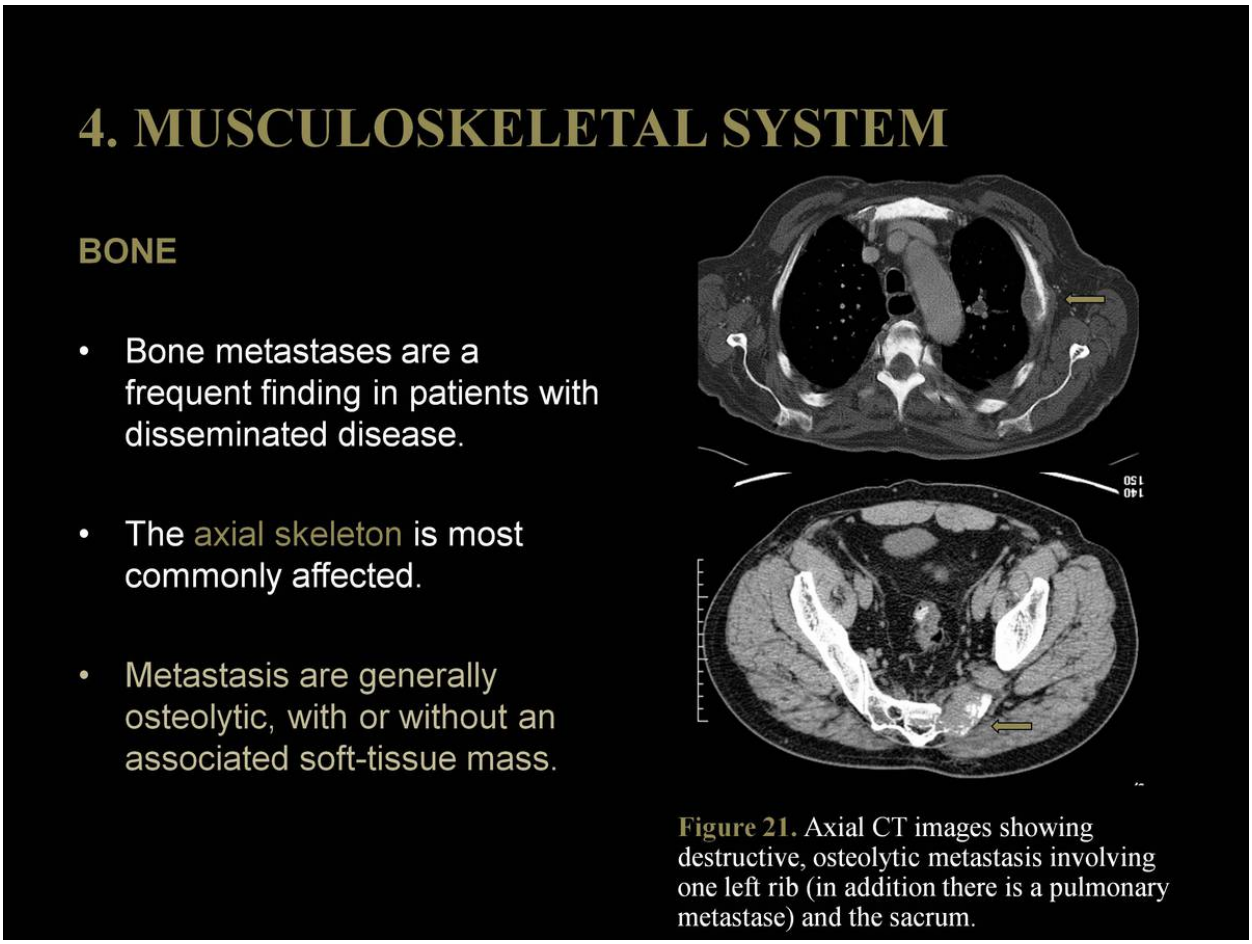

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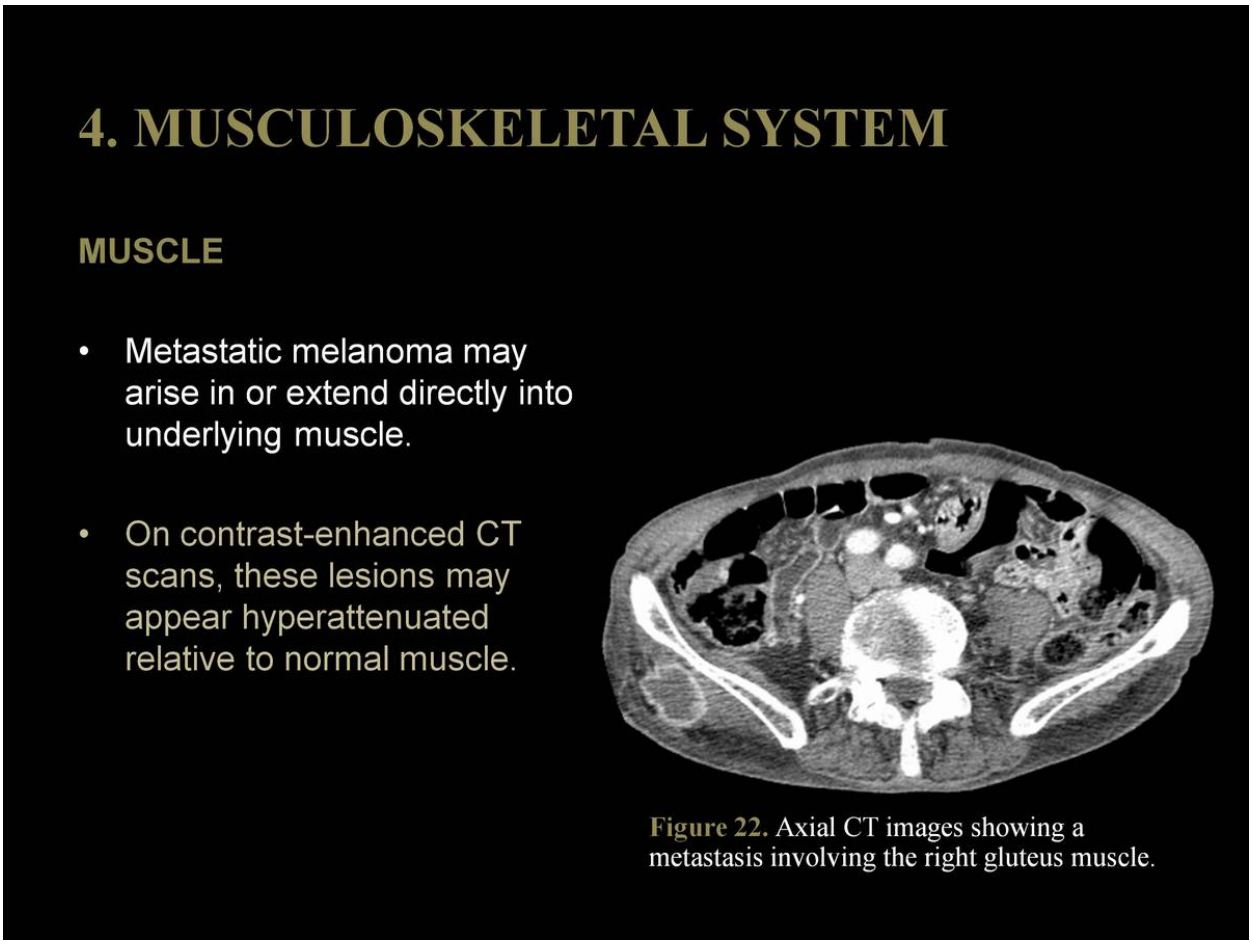

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4. MUSCULOSKELETAL SYSTEM

CUTANEOUS / SUBCUTANEOUS DEPOSITS

- Cutaneous and subcutaneous deposits are frequent.
- The primary lesion is often associated with satellite lesions or early cutaneous metastasis.
- **US**: hypoechoic, smooth or lobulated masses with distal acoustic enhancement +/- internal arterial flow.

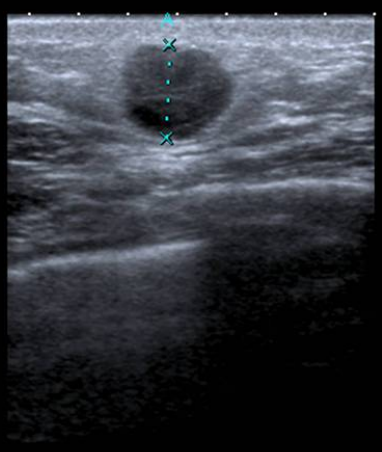

Figure 23. Ultrasound image demonstrating a subcutaneous nodule.

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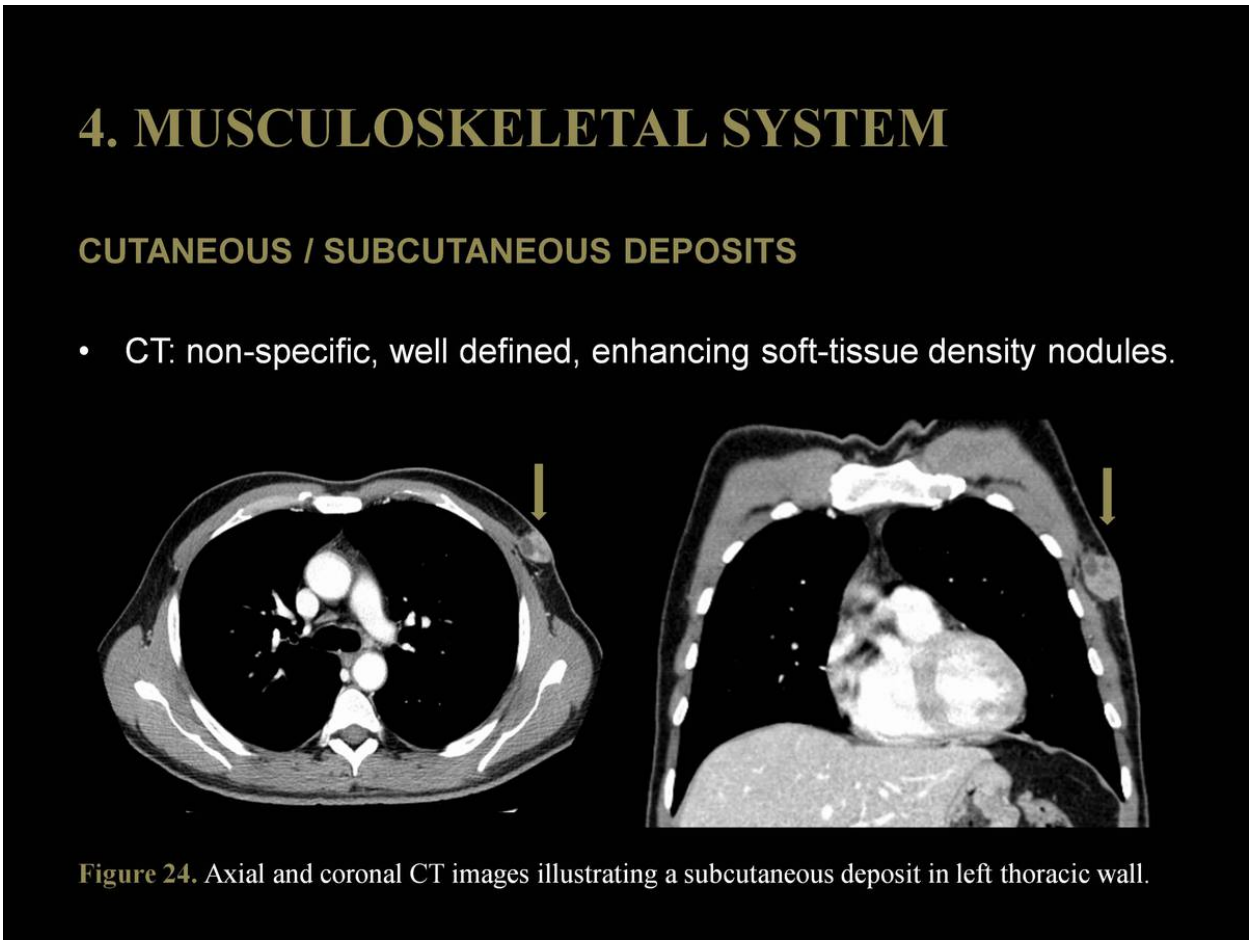

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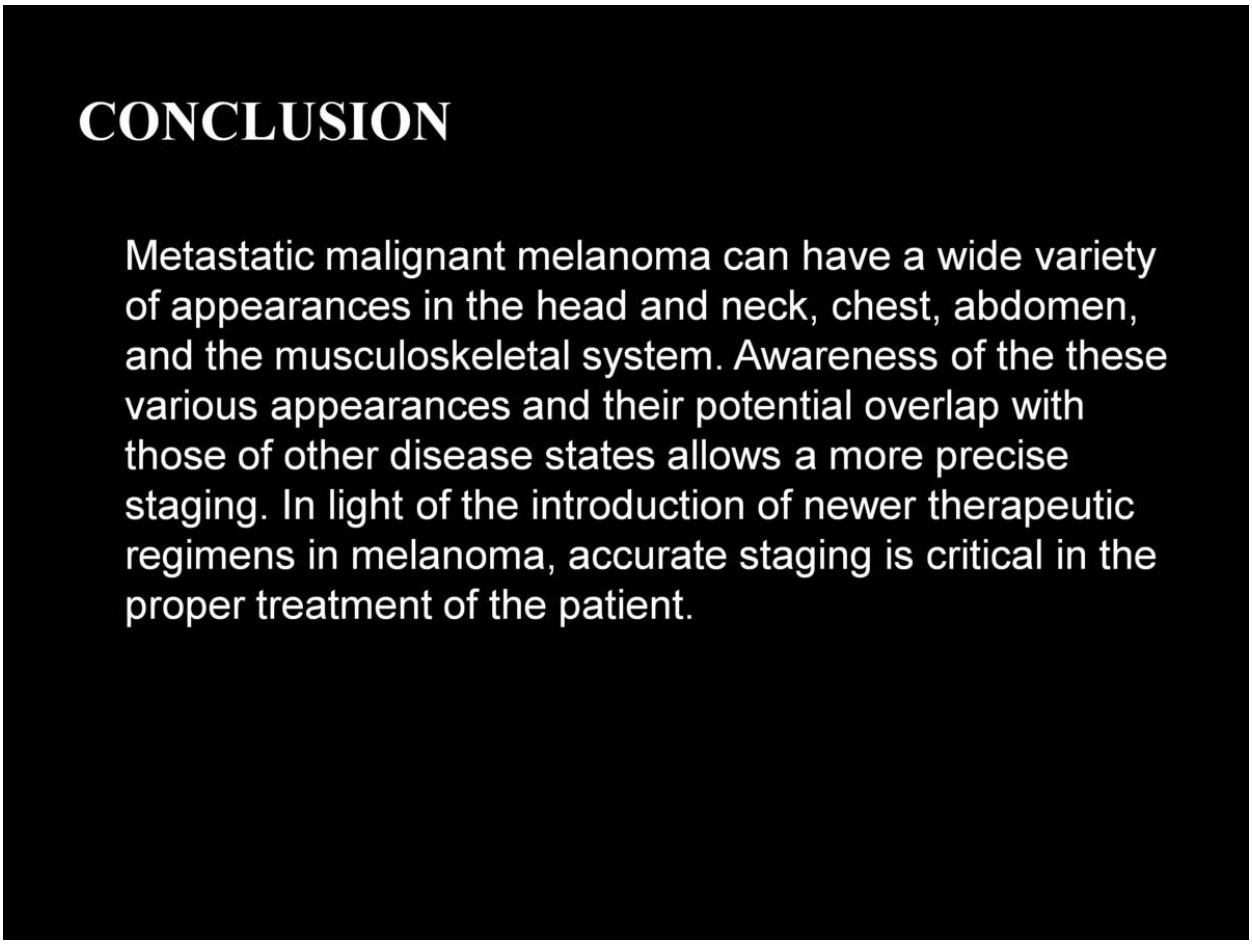
Conclusion



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Manuela Gonçalo

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Serviço de Radiologia

Hospitais da Universidade de Coimbra

Portugal

References

Skeletal muscle metastases: primary tumours, prevalence, and radiological features.

Surov A, Hainz M, Holzhausen HJ, Arnold D, Katzer M, Schmidt J, Spielmann RP, Behrmann C.

Eur Radiol. 2009 Aug 26.

Lymphoscintigraphy in cutaneous melanoma: an updated total body atlas of sentinel node mapping.

Intenzo CM, Truluck CA, Kushen MC, Kim SM, Berger A, Kairys JC.

Radiographics. 2009 Jul-Aug;29(4):1125-35.

Role of PET in the initial staging of cutaneous malignant melanoma: systematic review.

Krug B, Crott R, Lonneux M, Baurain JF, Pirson AS, Vander Borght T.

Radiology. 2008 Dec;249(3):836-44.

Imaging of metastatic malignant melanoma to the head: self-assessment module.

Jayashankar A, Sabourin SM, Mullins ME.

AJR Am J Roentgenol. 2008 Sep;191(3 Suppl):S22-4.

Mesenteric neoplasms: CT appearances of primary and secondary tumors and differential diagnosis.

Sheth S, Horton KM, Garland MR, Fishman EK.

Radiographics. 2003 Mar-Apr;23(2):457-73.

A variety of appearances of malignant melanoma in the head: a review.

Escott EJ.

Radiographics. 2001 May-Jun;21(3):625-39.

Liver metastases from melanoma: detection with multiphasic contrast-enhanced CT.

Blake SP, Weisinger K, Atkins MB, Raptopoulos V.

Radiology. 1999 Oct;213(1):92-6.

Superficial melanoma metastases: appearances on gray-scale and color Doppler sonography.

Nazarian LN, Alexander AA, Kurtz AB, Capuzzi DM Jr, Rawool NM, Gilbert KR, Mastrangelo MJ.

AJR Am J Roentgenol. 1998 Feb;170(2):459-63.

Malignant melanoma metastatic to the gastrointestinal tract.

McDermott VG, Low VH, Keogan MT, Lawrence JA, Paulson EK.

AJR Am J Roentgenol. 1996 Apr;166(4):809-13.

Metastases: mechanisms, pathways, and cascades.

Morgan-Parkes JH.

AJR Am J Roentgenol. 1995 May;164(5):1075-82.

Visceral metastases from melanoma: findings on MR imaging.

Premkumar A, Sanders L, Marincola F, Feuerstein I, Concepcion R, Schwartzentruber D.

AJR Am J Roentgenol. 1992 Feb;158(2):293-8.

CT evaluation for pulmonary metastases in patients with extrathoracic malignancy.

Davis SD.

Radiology. 1991 Jul;180(1):1-12.

CT of malignant melanoma in the chest, abdomen, and musculoskeletal system.

Fishman EK, Kuhlman JE, Schuchter LM, Miller JA 3rd, Magid D.

Radiographics. 1990 Jul;10(4):603-20.

Metastases from malignant melanoma to the axial skeleton: a CT study of frequency and appearance.

Patten RM, Shuman WP, Teefey S.

AJR Am J Roentgenol. 1990 Jul;155(1):109-12.

CT in differential diagnosis of diffuse pleural disease.

Leung AN, Müller NL, Miller RR.

AJR Am J Roentgenol. 1990 Mar;154(3):487-92.

Subcutaneous metastases from malignant melanoma: prevalence and findings on CT.

Patten RM, Shuman WP, Teefey S.

AJR Am J Roentgenol. 1989 May;152(5):1009-12.