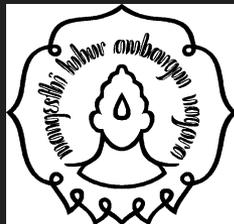


Karakteristik Imaging Lesi Malignant pada Payudara Laki-laki

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PENDAHULUAN

Jaringan payudara pada laki-laki dan perempuan adalah identik sampai dipengaruhi **hormonal** saat pubertas



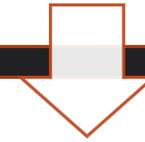
Estrogen menstimulasi jaringan payudara sedangkan androgen sebagai efek antagonis



Selama masa peripubertas pada laki-laki, terdapat peningkatan level estrogen dan 30 x peningkatan level testosteron

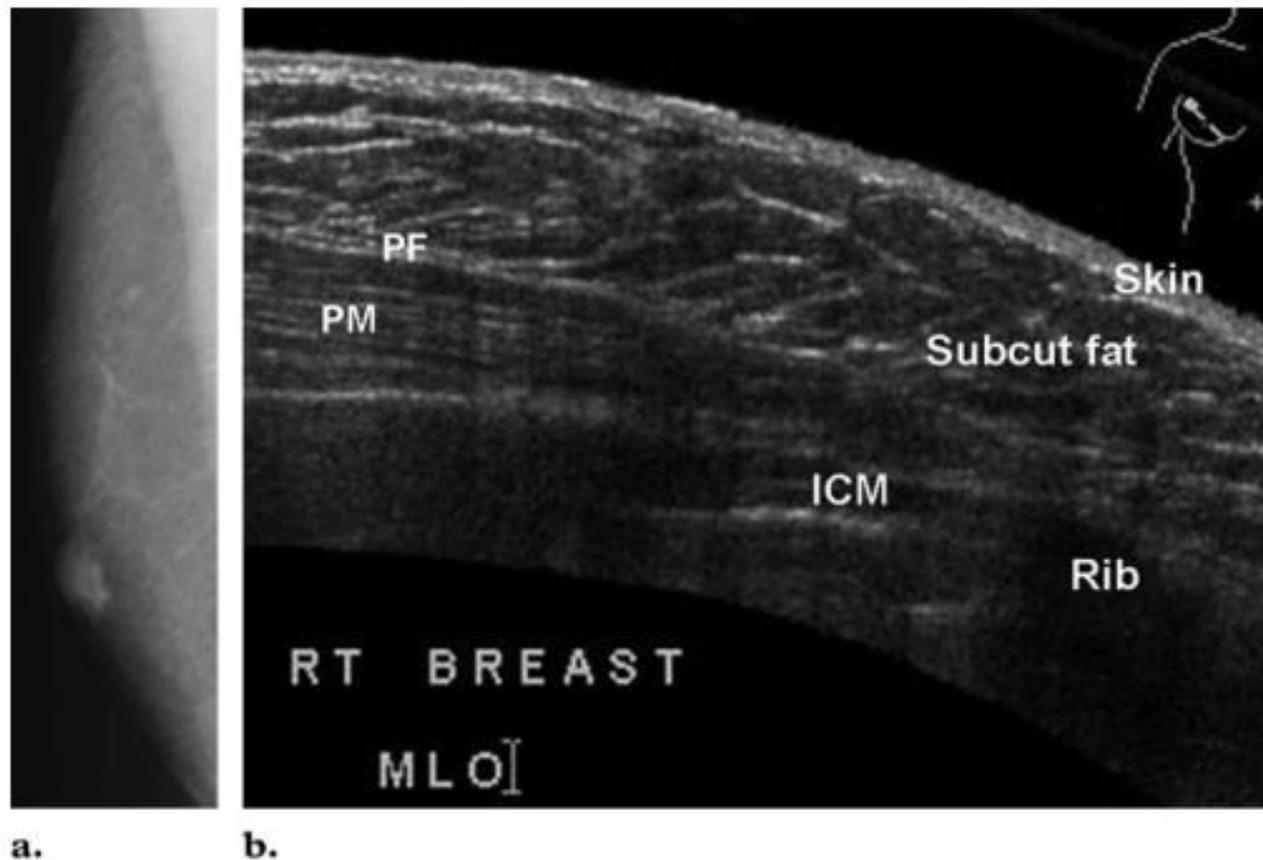


Proliferasi sementara ductus dan stroma diikuti dengan involusi dan akhirnya atrofi dari ductus



Oleh karena itu, payudara normal laki-laki :
subcutaneous fat dan sisa dari jaringan ductal subareolar

Figure 1. Normal male breast. **(a)** Mediolateral oblique mammogram shows the normal male breast, which consists predominantly of subcutaneous fat. Note the lack of the Cooper ligament. **(b)** Ultrasonographic (US) image obtained with the expanded field of view panoramic technique shows the anatomy of the normal male breast, which consists of the skin and subcutaneous fat. The pectoralis fascia (PF), pectoralis muscle (PM), ribs, and intercostal muscles (ICM) are also shown.



PENDAHULUAN

Mayoritas lesi yang ditemukan pada laki-laki jinak, tersering dengan gynecomastia.

Mayoritas laki-laki yang dikirim untuk imaging payudara mengalami benjolan **yang palpable, pembesaran payudara atau nyeri.**

Pada artikel ini, menjelaskan gambaran mammografi dan US yang sering pada lesi jinak dan malignant payudara laki-laki.

Review ini berdasarkan 719 mammografi dan 296 US di 3 institusi

Results of Evaluations of the Male Breast Performed at Three Institutions during 40 Months from 2000 to 2003

Institution	Total Cases	Cases Studied with US	Cases Studied with Biopsy	Cases of Malignant Disease*	Cases of Benign Disease [†]
A	339	120	15	2	13
B	119	119	24	4	20
C	261	57	27	8	19
Total	719	296	66	14	52

*The 14 malignant lesions were eight invasive ductal carcinomas, five lymphomas or metastases, and one dermatofibrosarcoma.

[†]Lesions diagnosed as benign gynecomastia according to clinical and imaging criteria were followed up clinically for 1–2 years.

Imaging pada Payudara Laki-laki

- Insidensi kanker payudara pada laki-laki sangat rendah untuk menetapkan mammografi sebagai screening
- Oleh karena itu, **semua imaging pada payudara laki-laki merupakan diagnostik**
- Mammografi merupakan metode yang akurat untuk membedakan gynecomastia dan karsinoma payudara (Evans, 2001)
- Ketika mammografi didapatkan temuan yang meragukan, US dapat menjadi pemeriksaan yang efektif

Kanker Payudara laki-laki

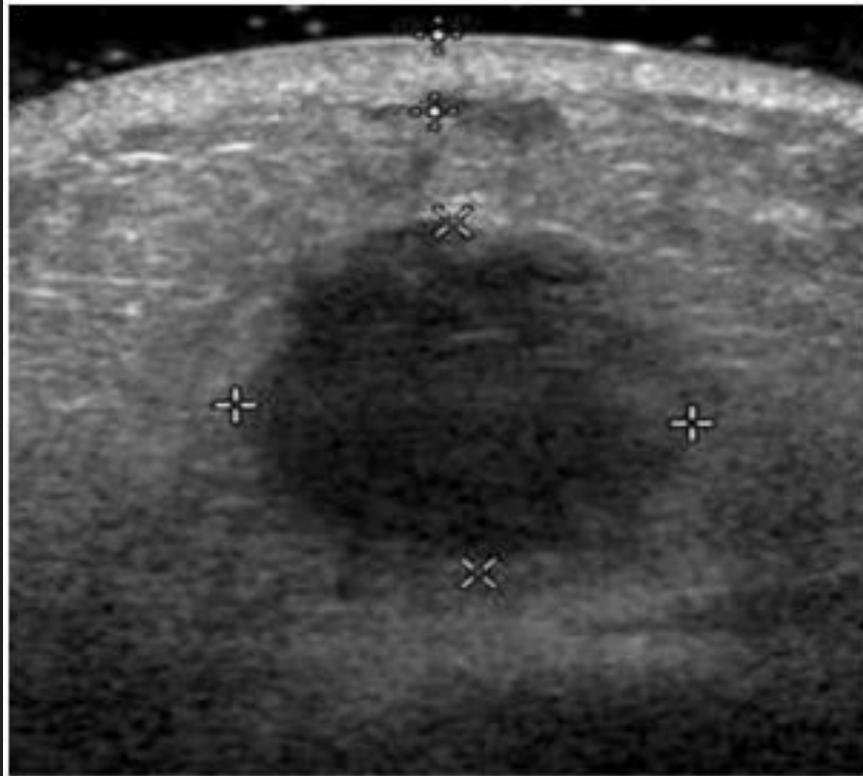
- 0.7% dari total kanker payudara (Jaiyesimi, 1992)
- Lebih dari 25 tahun, insidensi kanker payudara laki-laki meningkat 26%, dari 0.86 hingga 1.08 per 100,000 (Giordano, 2005)
- **Rata-rata usia diagnosis 67 tahun** dan kurang dari 6% terjadi dibawah 40 tahun (Carmalt, 1998)
- Palpable mass, skin thickening, nipple retraksi, palpable axillary limfonodi
- **Diagnostik** : mammografi, US, dan final diagnosis dengan biopsi.

Gambaran Mammografi

- Sekitar 85% kanker payudara laki-laki adalah **invasive ductal carcinoma** (Chantra, 2005).
- Pada mammografi tampak gambaran **massa irreguler densitas tinggi dengan kontur batas tegas**
- Tepi biasanya **spiculated, lobulated atau microlobulated**
- Mayoritas **massa retroareolar** karena kanker payudara laki-laki biasanya tumbuh dari ductus sentralis



a.

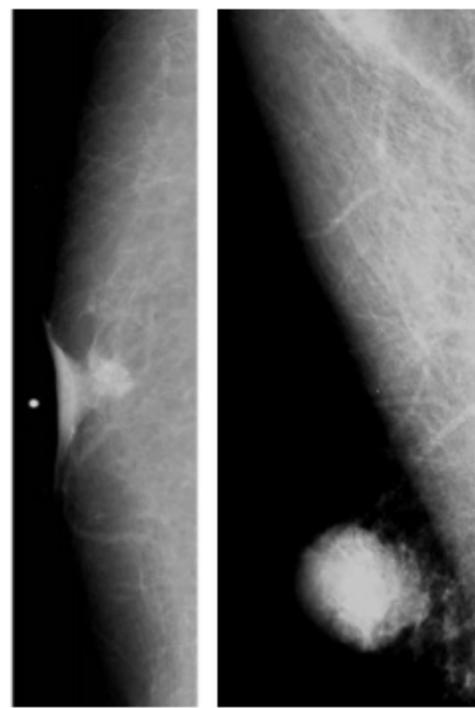


b. **Figure 2.** Invasive ductal carcinoma in a 52-year-old man with a palpable mass. **(a)** Mediolateral oblique mammogram shows an eccentrically located, irregular, indistinct, dense mass (M) deep in the palpated region with overlying skin thickening (S). The entire lesion could not be imaged with mammography because of its peripheral and deep location. **(b)** Transverse US image of the palpated region shows the nonparallel, hypoechoic, microlobulated mass with surrounding echogenic breast tissue. The overlying skin thickening is also seen.

Figures 3, 4. (3) Invasive ductal carcinoma in a 77-year-old man with a 3-month history of a tender subareolar mass. (a) Coned-down craniocaudal mammogram shows a small, irregular, retroareolar density with nipple retraction and skin thickening.

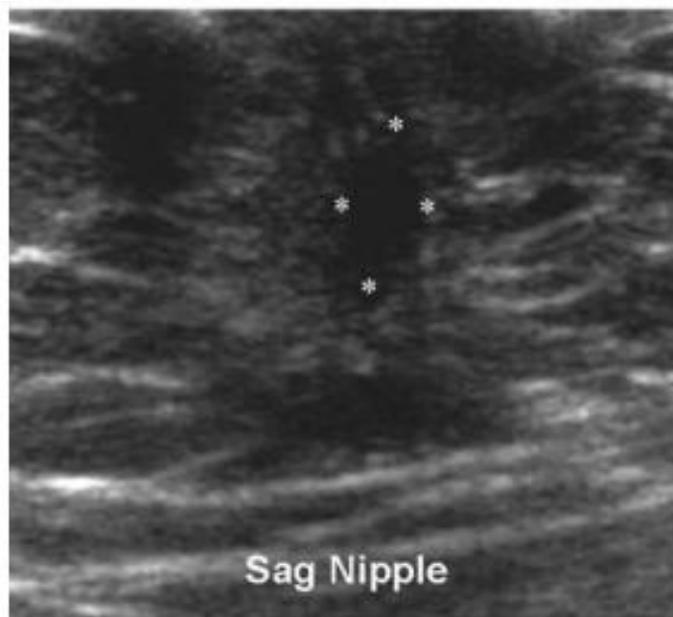
(b) Transverse US image of the nipple region shows the irregular, nonparallel, hypoechoic mass with angular margins and an isoechoic halo (*). The overlying low echogenicity corresponds to the nipple retraction and skin thickening seen on the mammogram.

(4) Invasive ductal carcinoma with ipsilateral axillary lymph node metastasis in a 66-year-old man with a 6-month history of a right breast lump. (a) Mediolateral oblique mammogram of the right breast shows a round, microlobulated, high-density mass in the retroareolar region with increased trabeculation of the entire breast. (b) Transverse US image of the right breast shows the round, microlobulated, hypoechoic, complex mass with posterior acoustic enhancement.



3a.

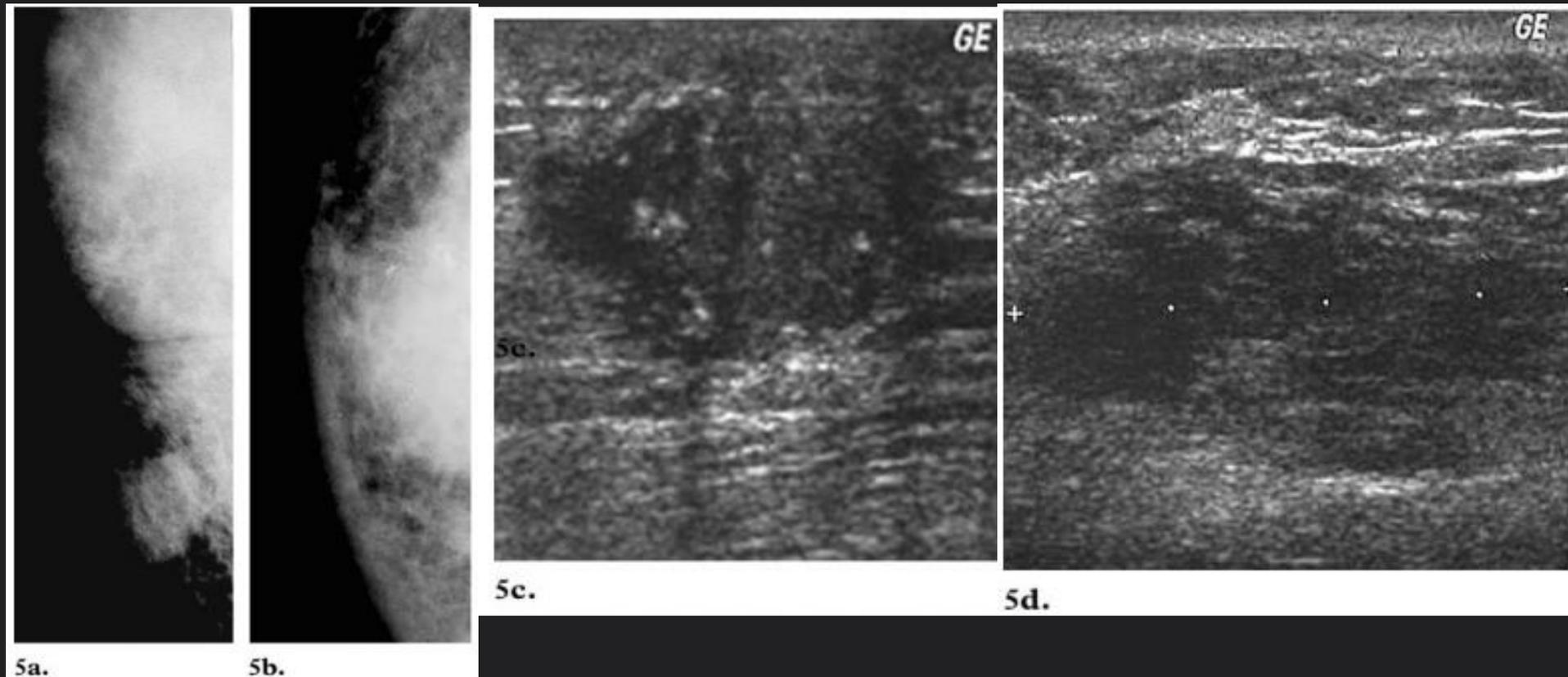
4a.



3b.

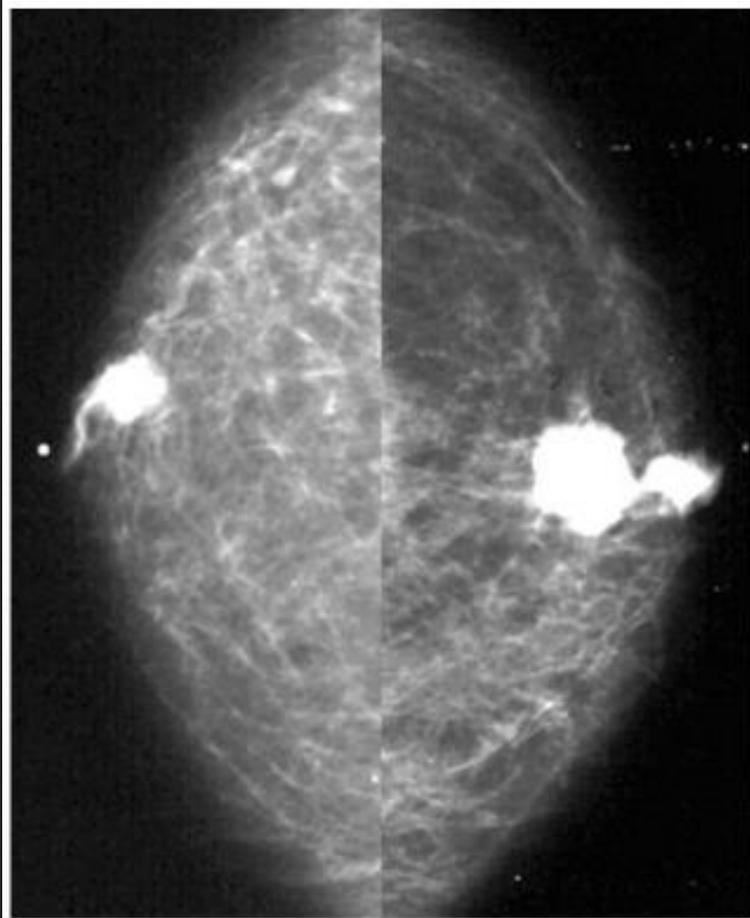


4b.

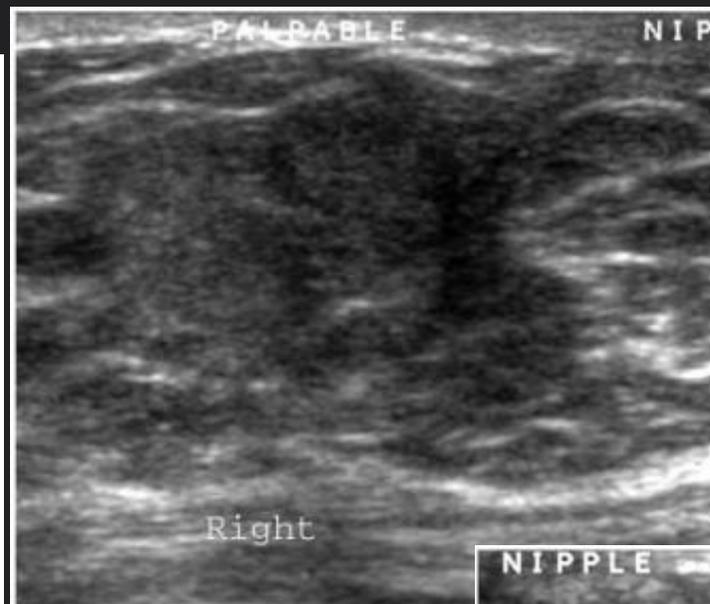


Figures 5, 6. (5) Invasive ductal carcinoma with ipsilateral axillary lymph node metastases in a 49-year-old man with a palpable right breast mass. Physical examination demonstrated that the right breast was markedly larger than the left with induration, erythema, and nipple retraction. There were palpable nodes in the right axillary and supraclavicular regions. (a) Mediolateral oblique mammogram of the right breast shows an irregular, retroareolar, high-density mass with increased trabeculation of the breast. (b) Craniocaudal mammogram of the right breast shows the high-density mass with microcalcification and overlying skin thickening. (c) Transverse US image of the palpated region shows the irregular hypoechoic mass with punctate calcifications and mild posterior acoustic enhancement. (d) US image of the right axilla shows an irregular hypoechoic mass, which represents an abnormal lymph node.

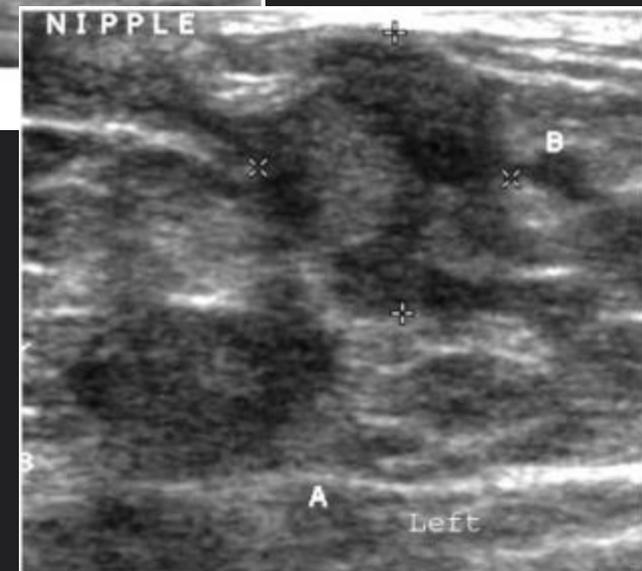
- Nipple retraction, penebalan kulit, peningkatan trabekulasi merupakan tanda sekunder yang membantu dan menyatakan prognosis yang buruk
- Tampak pada persentase yang lebih besar pada laki-laki dan muncul pada lesi dengan ukuran yang kecil dibanding perempuan karena ukuran payudara laki-laki yang lebih kecil



6a.



6b.

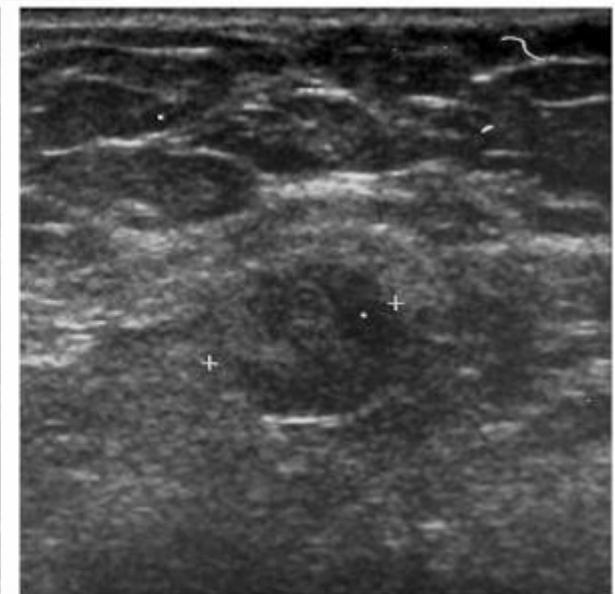
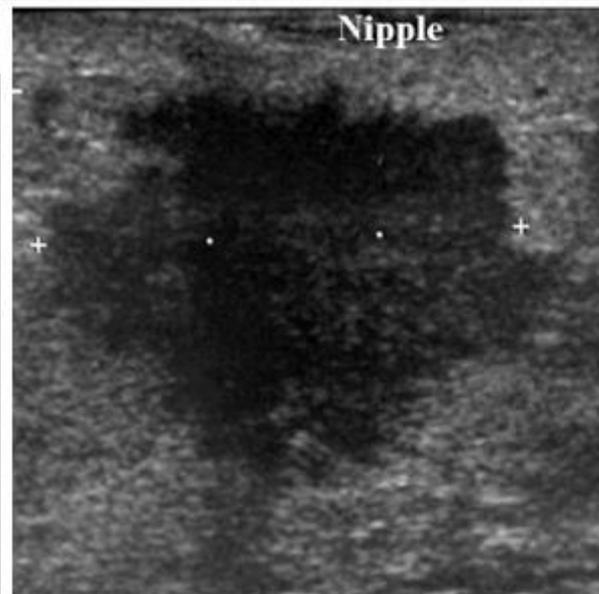
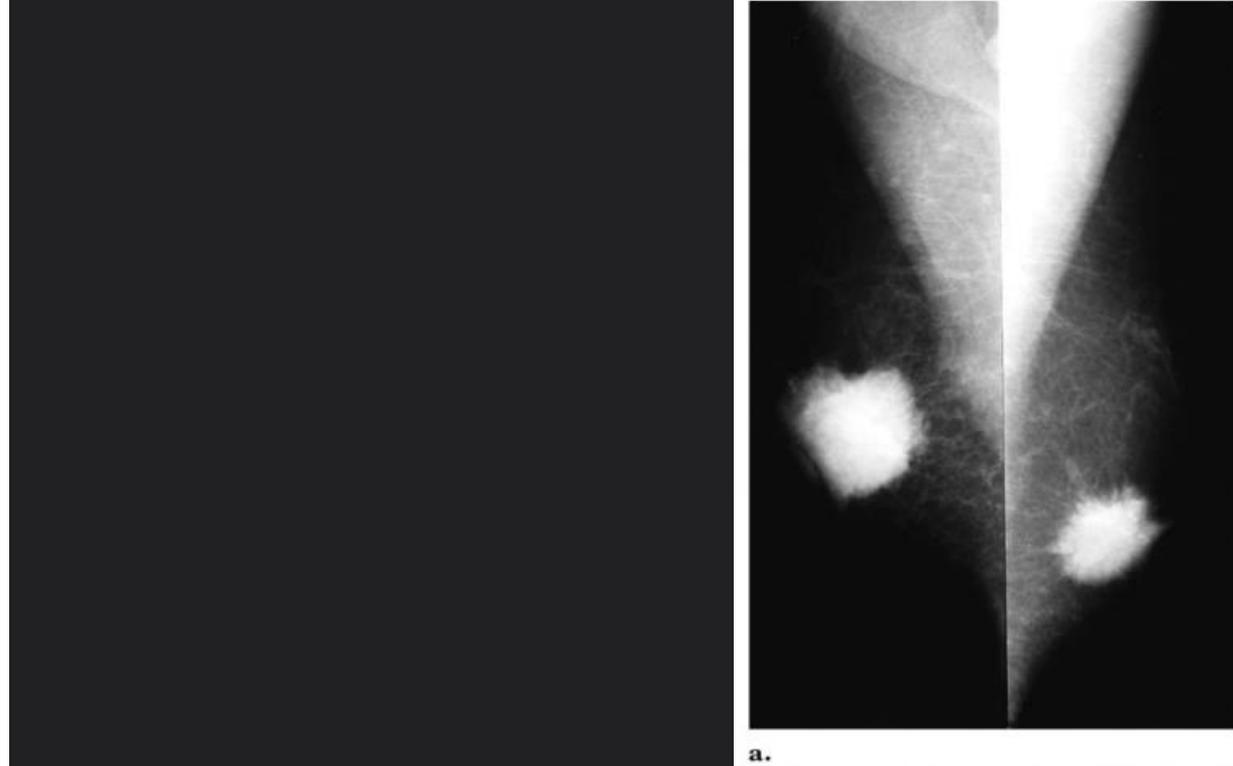


6c.

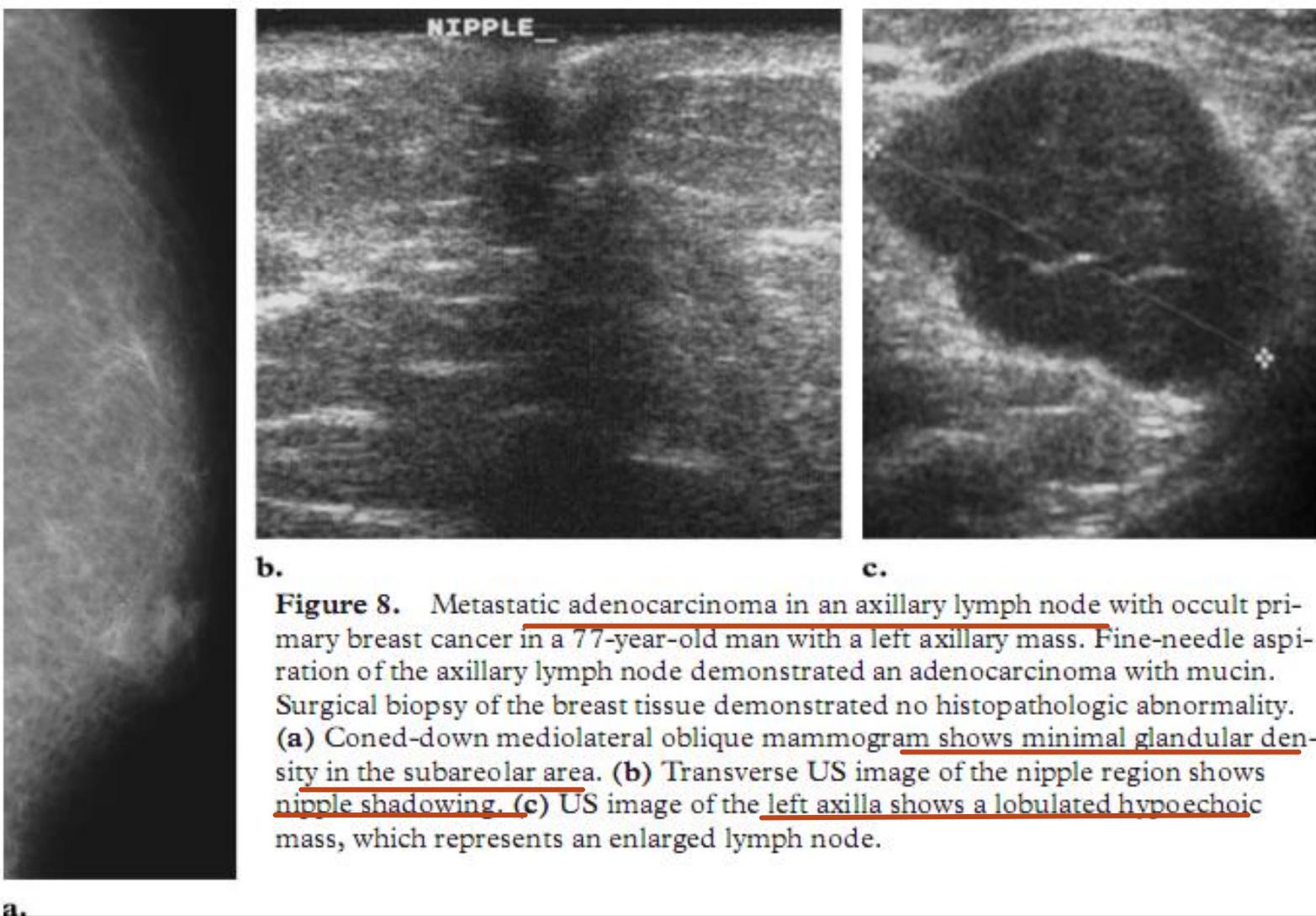
(6) Bilateral invasive ductal carcinoma with left axillary lymph node metastasis in a patient with a family history of breast cancer who presented with bilateral palpable breast lumps. (a) Craniocaudal mammograms show bilateral lobulated, high-density, retroareolar masses. (b, c) Longitudinal US images of the right (b) and left (c) breasts show the bilateral nonparallel lobulated masses, which are adjacent to but separate from the nipples. The masses are predominantly hypoechoic with mixed internal echogenicity.

Figure 7. Bilateral invasive ductal carcinoma with bilateral axillary lymph node metastases in a 48-year-old man with Klinefelter syndrome and a history of bilateral breast lumps for several months. (a) Mediolateral oblique mammograms show bilateral large, retroareolar, spiculated, high-density masses with skin thickening and nipple retraction. (b) Transverse US image of the nipple region of the right breast shows the hypoechoic and irregular retroareolar mass with spiculation and angular margins. There is mild posterior acoustic shadowing. (c) US image of the right axilla shows a hypoechoic lobulated mass, which represents metastatic cancer in a lymph node. Similar US findings were seen on images of the left breast and axilla.

◇ 2 dari 6 pasien memiliki kanker payudara bilateral, salah satunya pasien dengan **sindrom Klinefelter**



- **Sindrom Klinefelter** merupakan kondisi genetik yang langka (XXY) dengan khasnya **penurunan atau berkurangnya produksi sperma, testis kecil dan pembesaran payudara.**
- Pasien ini mengalami peningkatan ratio **estrogen-androgen darah**, oleh karena itu terdapat peningkatan risiko 3% dan 20 x insidensi kanker payudara
- Pasien tersebut lebih cenderung memiliki **kanker payudara bilateral**
- Kanker payudara bilateral terdapat pada 1.4% pasien laki-laki



- ❖ Satu dari pasien tampak **dengan massa di axilla**. Mammogram menunjukkan hanya minimal density di subareolar. Biopsi pada payudara menunjukkan jaringan jinak. Fine-needle aspirasi pada limfonodi axilla menunjukkan metastatic adenocarcinoma
- ❖ Breast cancer dengan **manifestasi limfonodi axilla primer jarang terjadi**, hanya kurang dari 1% laki-laki (Namba, 2002)

Gambaran Ultrasonografi

- Pemeriksaan US membantu dalam **menilai hubungan massa dengan papilla**
- Massa retroareolar pada mammografi mungkin tampak eksentrik dengan papilla pada US
- **Penebalan kulit dan retraksi papilla** dapat dengan mudah diidentifikasi dengan US
- US juga bermanfaat untuk melihat **lokasi lesi yang dalam**, yang sulit pada mammografi
- **US regio axilla** rutin dilakukan. Pembesaran limfonodi axilla terjadi pada 50% pasien laki-laki dengan kanker payudara
- **Circumscribed mass** pada mammografi dengan **komponen kistik** pada sonografi pasien laki-laki curiga keganasan (15)

Kondisi Malignant lain pada payudara laki-laki

Lymphoma

- Mayoritas unilateral lymphadenopathy merupakan **kondisi jinak** (misal infeksi)
- Penyebab tersering **malignant adalah lymphoma dan metastasis**
- Gambaran US malignant : penebalan ireguler korteks dan perubahan atau tidak adanya fatty hila

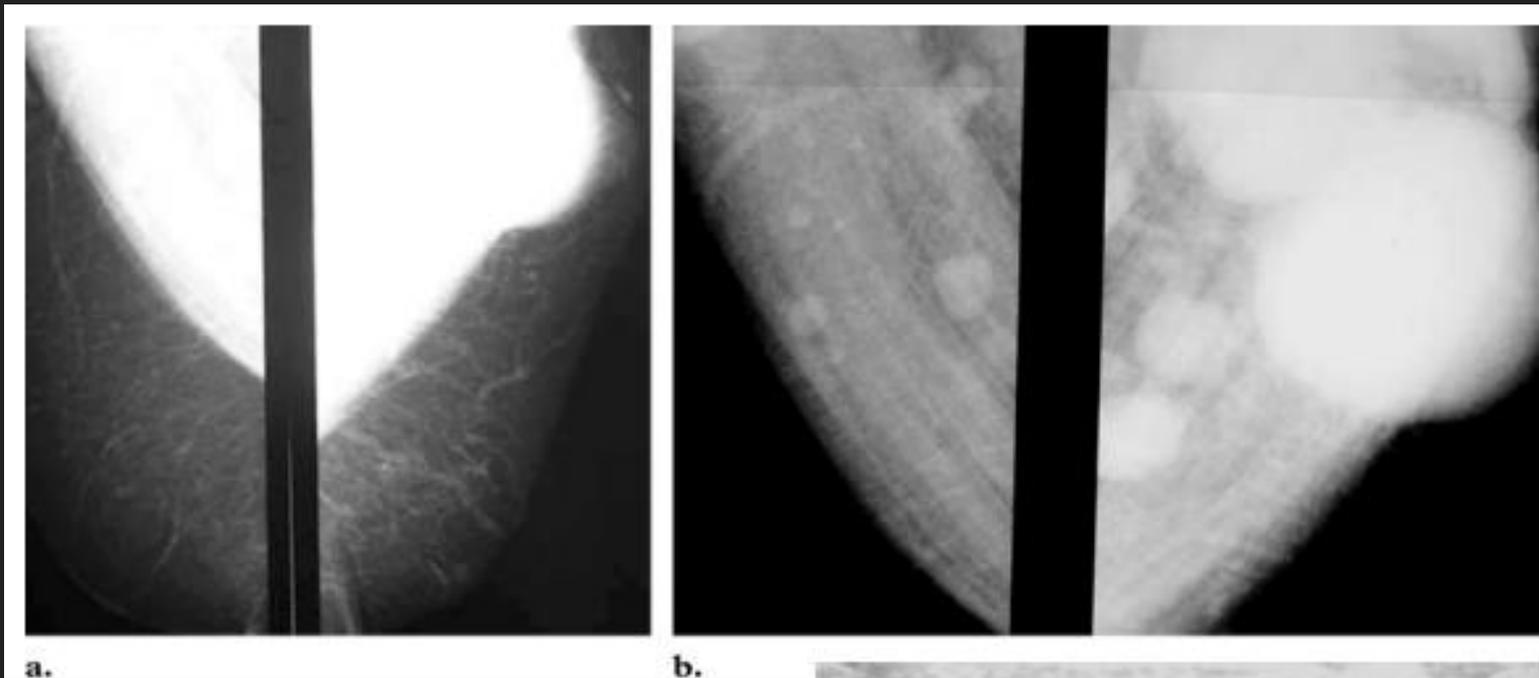
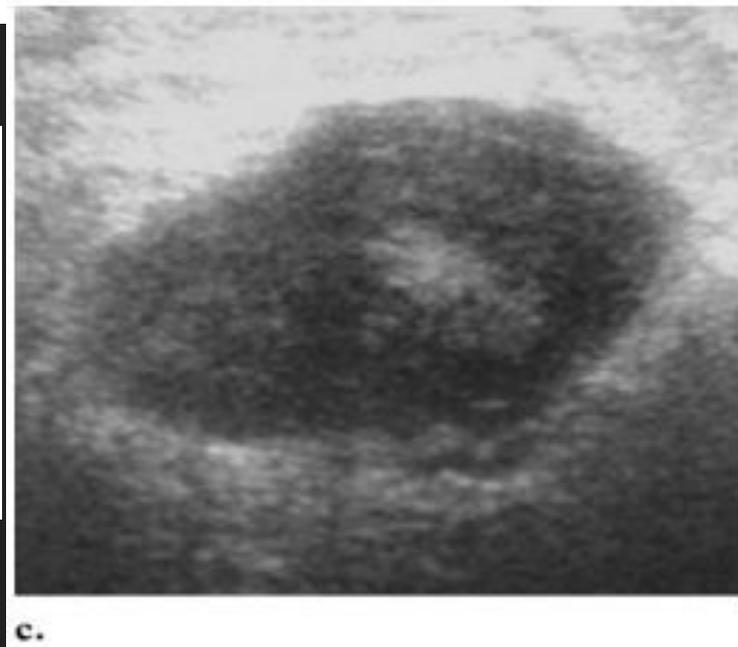
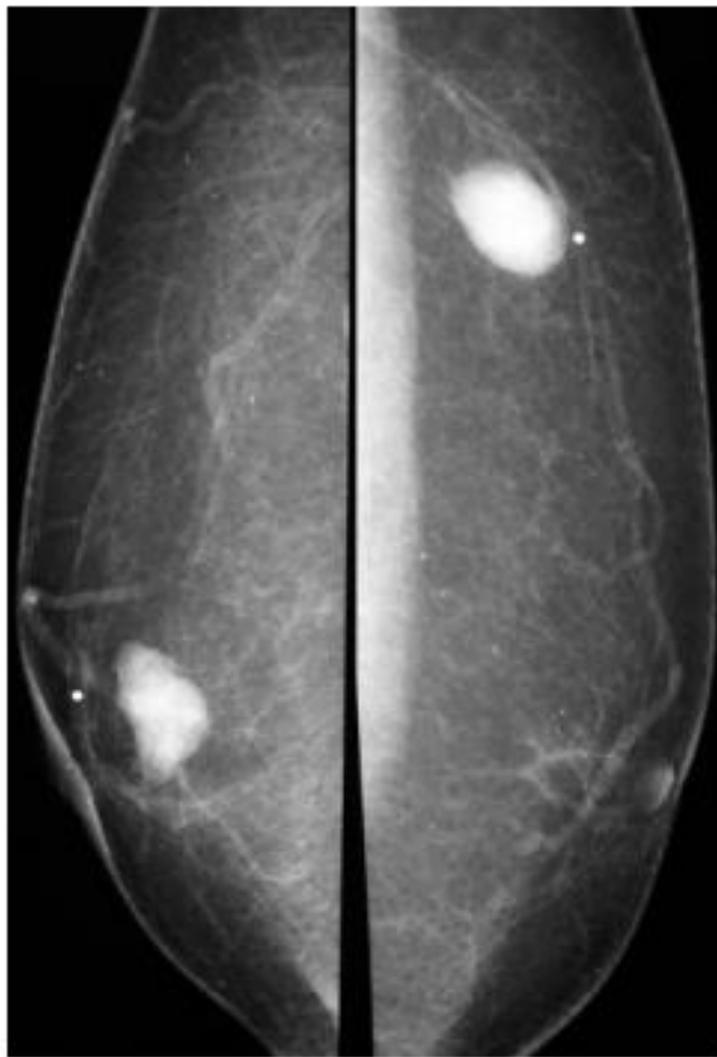
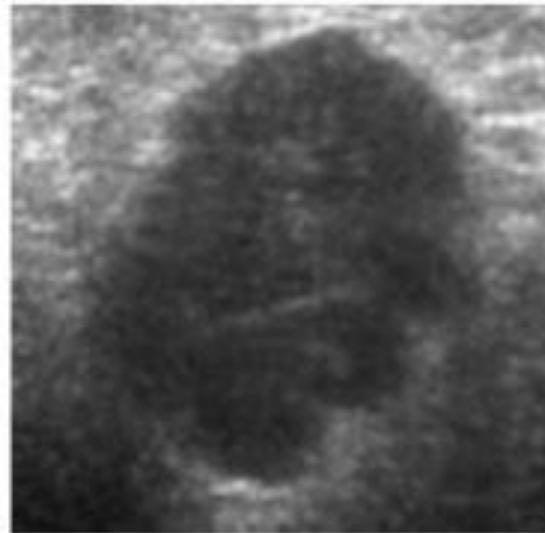


Figure 9. Hodgkin lymphoma in a 58-year-old man with a new lump in the left axilla and hardening of the left breast associated with intermittent pain. (a, b) Bilateral mediolateral oblique mammograms (a) and coned-down views of the axilla (b) show no suspicious breast mass. However, there are multiple enlarged dense lymph nodes in the left axilla (b). (c) US image of the left axilla shows one of the large hypoechoic masses with loss of normal architecture.





a.



b.

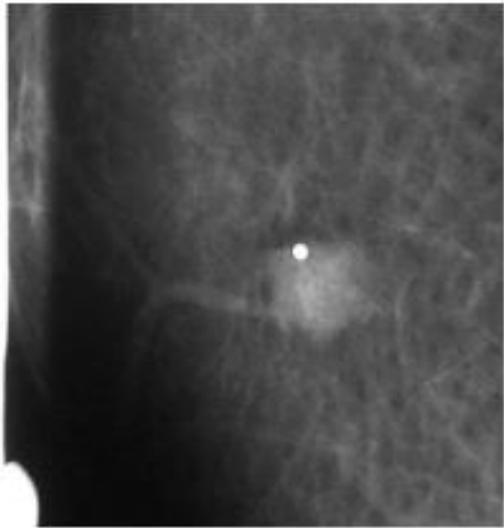
Figure 10. Mantle cell lymphoma in a 51-year-old man with dyspnea due to pleural effusion. Bilateral breast masses were found at admission; CT showed mediastinal, retroperitoneal, and pelvic masses. (a) Mammograms show bilateral circumscribed, oval or lobular, high-density masses. (b) Longitudinal US image shows one of the hypoechoic, circumscribed, microlobulated masses.

◇ Mantle cell lymphoma adalah bentuk B-cell lymphoma

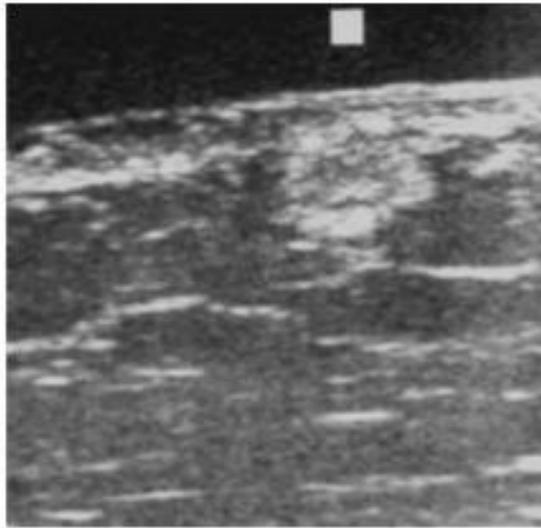
Kondisi Malignant lain pada payudara laki-laki

Dermatofibrosarcoma

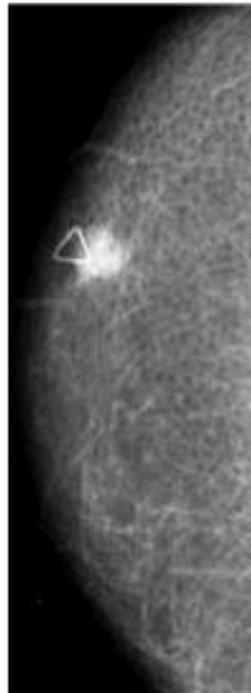
- Tidak sering, slow-growing, tetapi locally agresif fibrous tumor, disebut juga **spindle cell tumor**.
- Lebih **sering pada laki-laki, usia 20-50** tahun
- Sering terjadi **kondisi berulang** pasca pembedahan, **reseksi komplis sangat dianjurkan** (Chang, 2004)



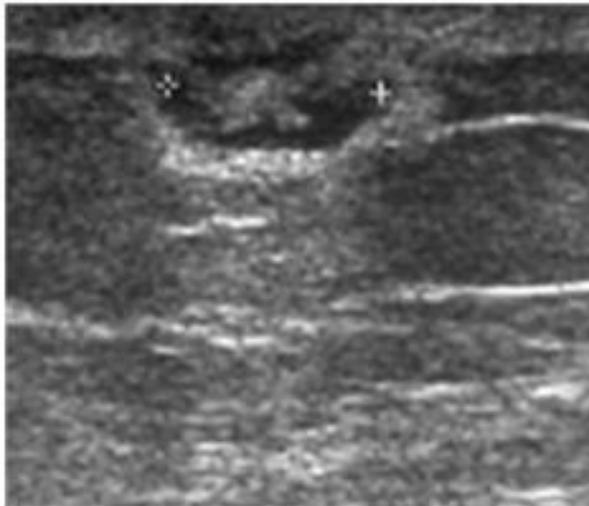
a.



b.



c.



d.

Figure 11. Dermatofibrosarcoma in a 49-year-old man who initially presented with a palpable small right breast mass and underwent right breast lumpectomy. He presented 3 years later with a new lump at the surgical site. (a) Mammogram (magnification view) from the initial presentation shows a small spiculated mass. (b) Transverse US image of the palpated region shows the hyperechoic mass with lobulated margins extending to the dermis.

(c) Cranio-caudal mammogram from the second presentation shows a spiculated mass in the same region. (d) Transverse US image of the palpated region shows the superficial lobulated mass with mixed internal echogenicity.

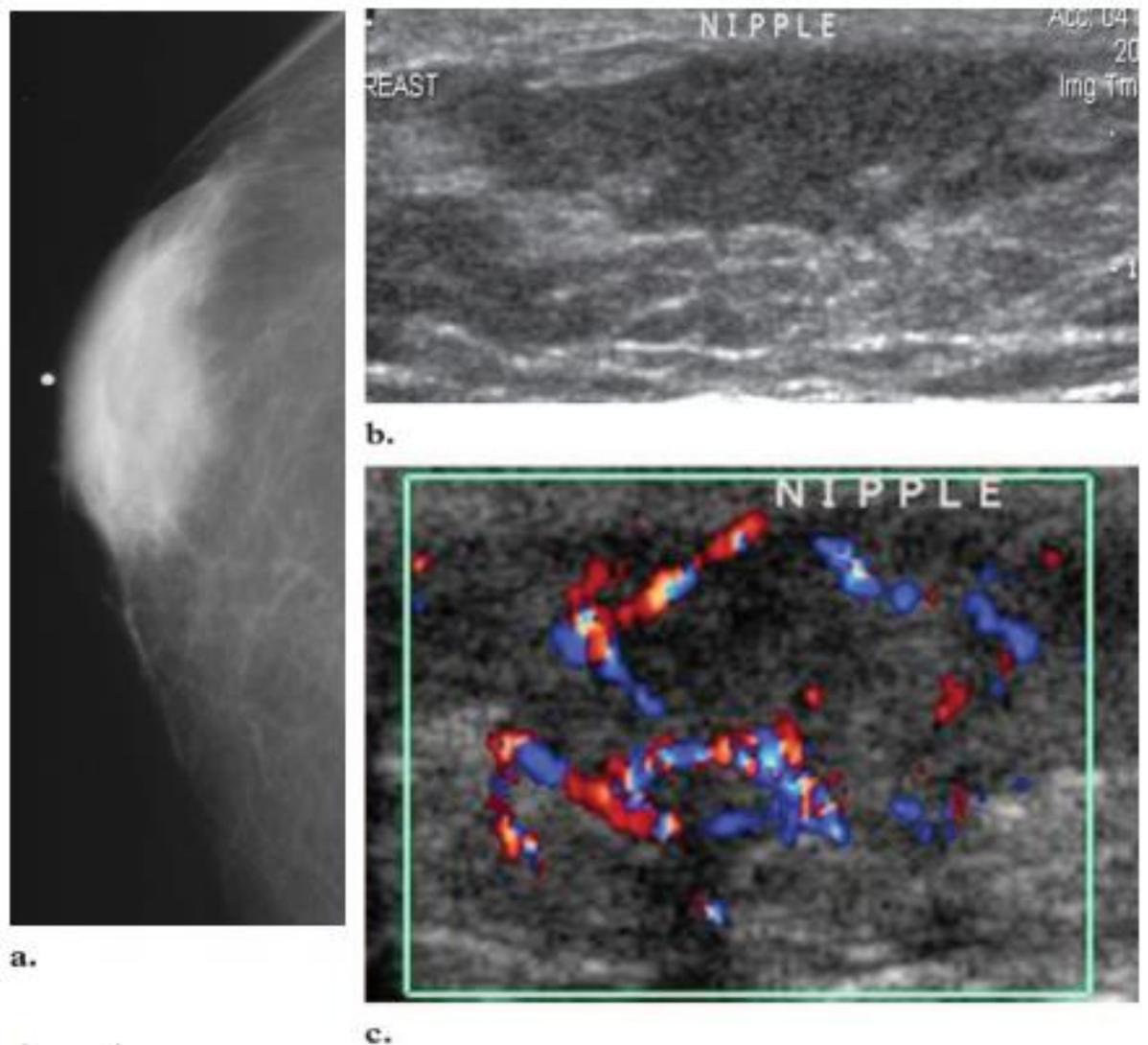
Satu kasus, dengan palpable small right breast mass, mammogram menunjukkan massa densitas tinggi dengan batas tak tegas, dan pemeriksaan US tampak hyperechoic lobulated mass. Menjalani lumpectomi payudara kanan, tapi 3 tahun kemudian muncul dengan new lump pada sisi pembedahan, yang pada US tampak massa dengan echogenitas campuran, aspirasi jarum halus menunjukkan spindle cell tumor

Kondisi jinak yang menyerupai kanker payudara

Gynecomastia

- **Kondisi jinak tersering.**
- Pembesaran payudara laki-laki karena proliferasi jinak ductal dan stromal
- Unilateral, bilateral symmetric, atau bilateral asymmetric
- Khususnya adalah **lokasi central symmetric dibawah papilla**
- **3 pola/stage** : nodular, dendritic, and diffuse glandular pattern

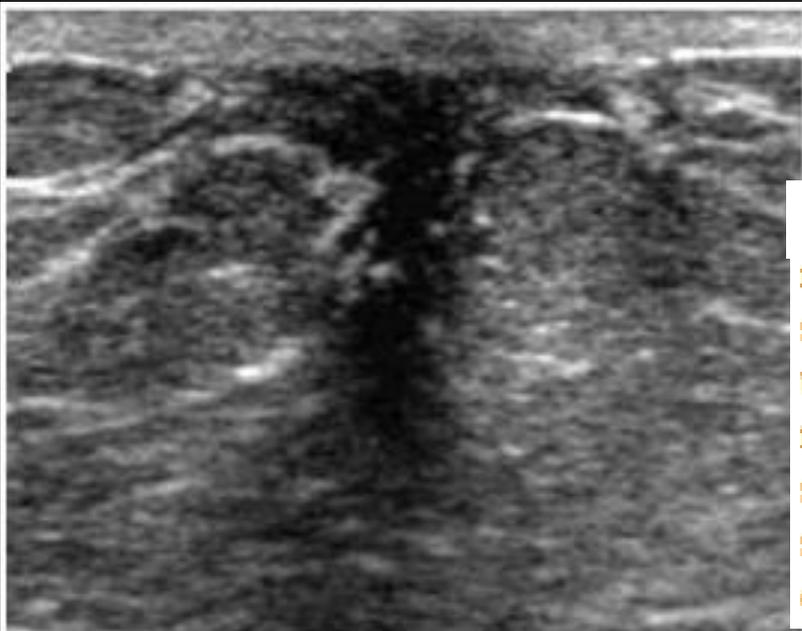
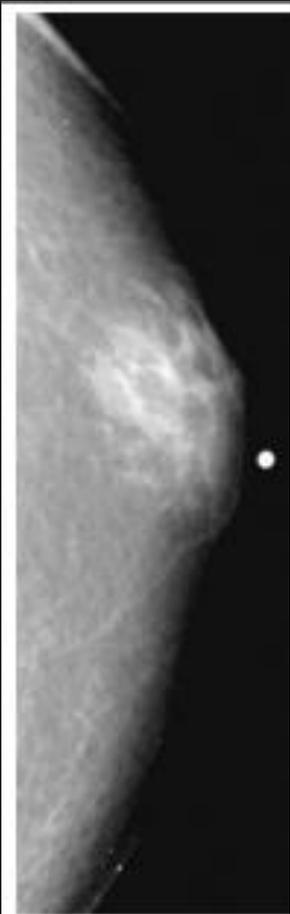
Figure 12. Early nodular gynecomastia. (a) Craniocaudal mammogram shows a nodular subareolar density. (b) Transverse US image shows the subareolar, fan-shaped, hypoechoic nodule surrounded by echogenic normal fatty tissue. (c) Color Doppler image shows hypervascular flow within the mass.



- ◇ **Early nodular gynecomastia (fase florid)**, kurang dari 1 tahun
- Mayoritas pasien datang dengan nyeri pada papilla atau palpable mass berbulan-bulan²⁴

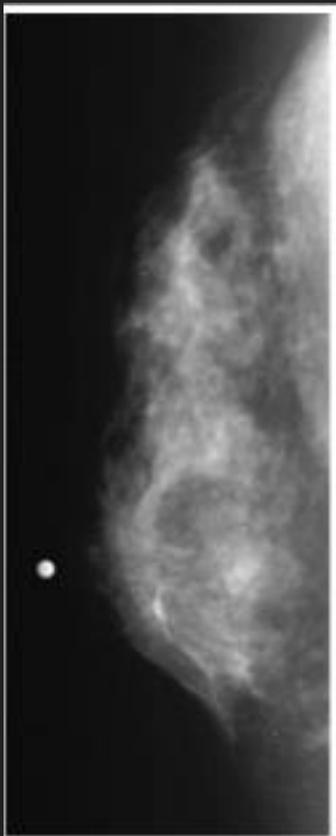
- ◇ **Chronic dendritic gynecomastia (fase quiescent)** tampak > 1 tahun.

Fibrosis menjadi proses dominant dan irreversible

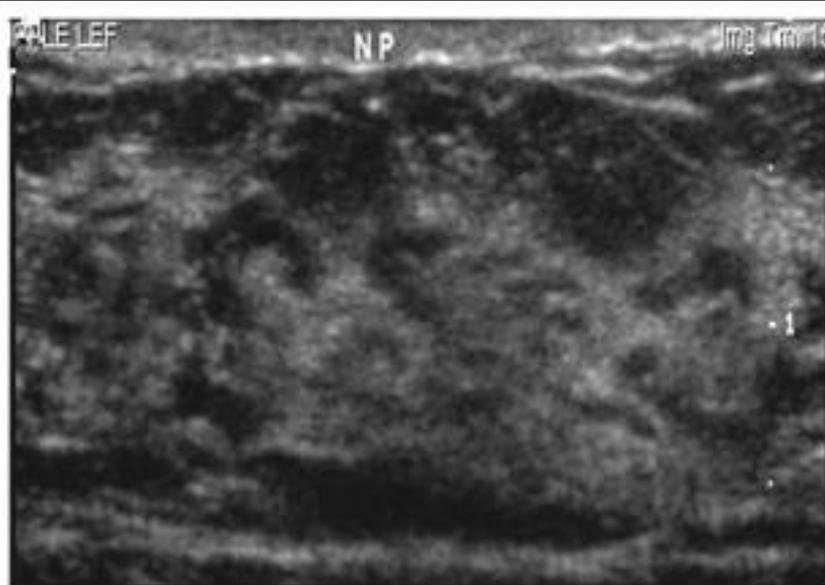


(13) Chronic dendritic gynecomastia. (a) Craniocaudal mammogram shows a dendritic subareolar density with posterior linear projections radiating into the surrounding tissue. (b) Transverse US image shows the subareolar hypoechoic nodule with star-shaped projections into the surrounding echogenic fibrous tissue.

- ◇ Pada US tampak lesi hypoechoic subareolar dengan anechoic star-shaped
- ◇ posterior border, (**fingerlike projections** atau “**spider legs**”), tampak suspicious malignancy bagi interpreter yang jarang melihat.
- ◇ **Yang menandakan jinak** : muncul langsung dibawah permukaan papilla, tanpa menyebabkan penebalan kulit atau retraksi papilla



14a.



14b.

(14) Diffuse gynecomastia. (a) Craniocaudal mammogram show enlargement of the breast and diffuse density with both dendritic and nodular features. (b) Transverse US image shows the diffusely heterogeneous breast with both nodular and dendritic projections surrounded by diffuse hyperechoic fibrous tissue.

- ◇ **Diffuse glandular gynecomastia** sering pada pasien yang menerima estrogen eksogenus. Yang membedakan dengan malignancy merupakan penyakit yang ekstensif tanpa massa khas dan tidak adanya secondary sign

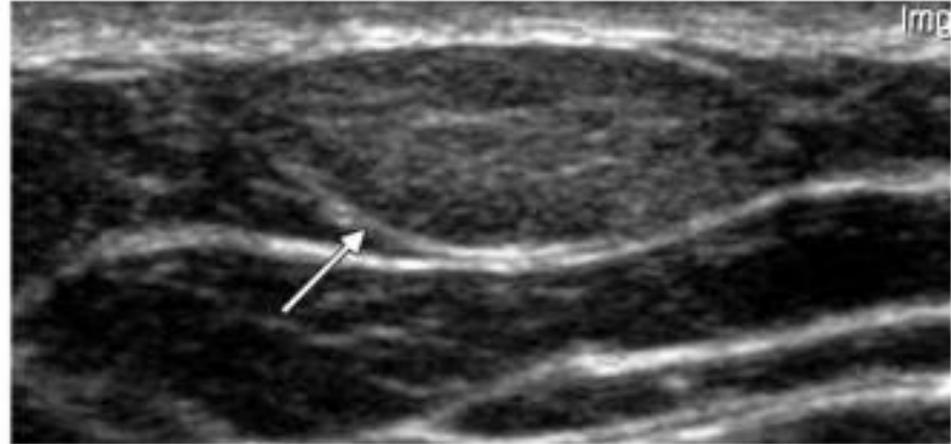
Kondisi jinak lain

Lipoma

- Kondisi jinak kedua tersering



a.



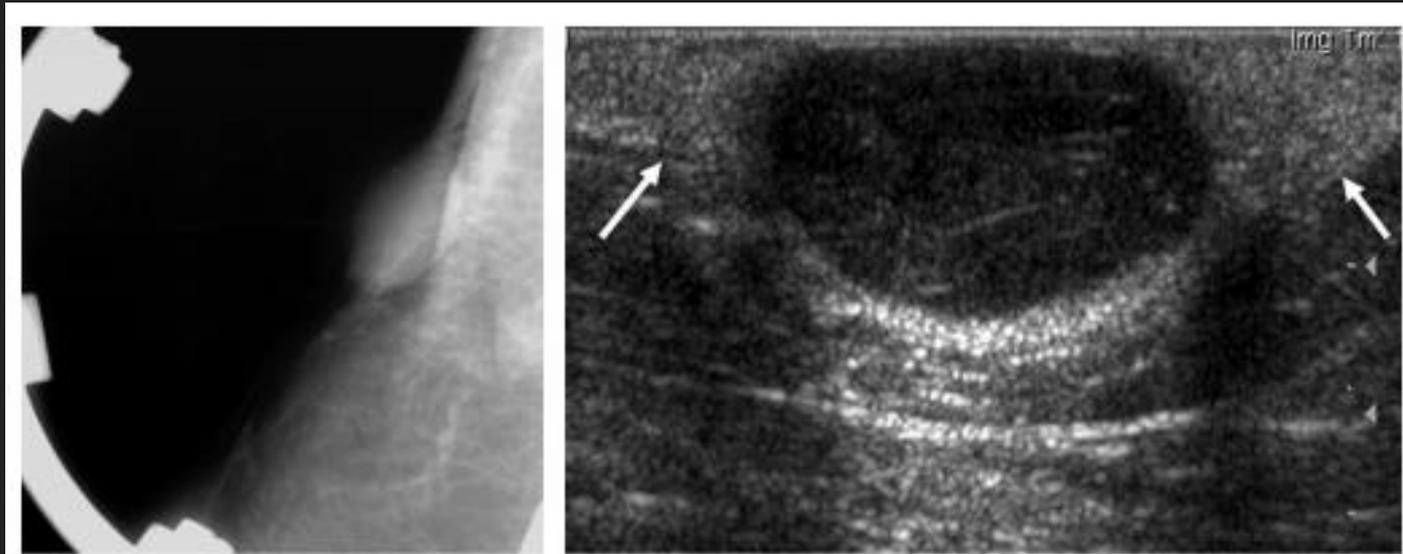
b.

Figure 15. Lipoma. (a) Craniocaudal mammogram shows a subtle encapsulated fatty mass (arrows) in the palpated region. (b) Transverse US image shows the parallel, homogeneous, mildly hyperechoic mass with a capsule (arrow) under the skin.

Kondisi jinak lain

Epidermal inclusion cyst

- Kondisi jinak ketiga tersering



a.

b.

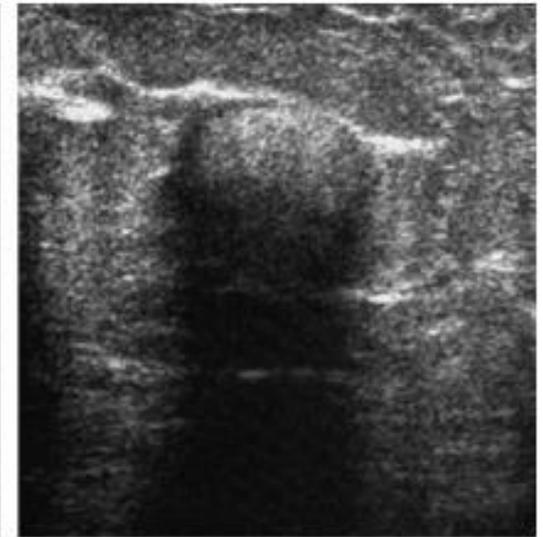
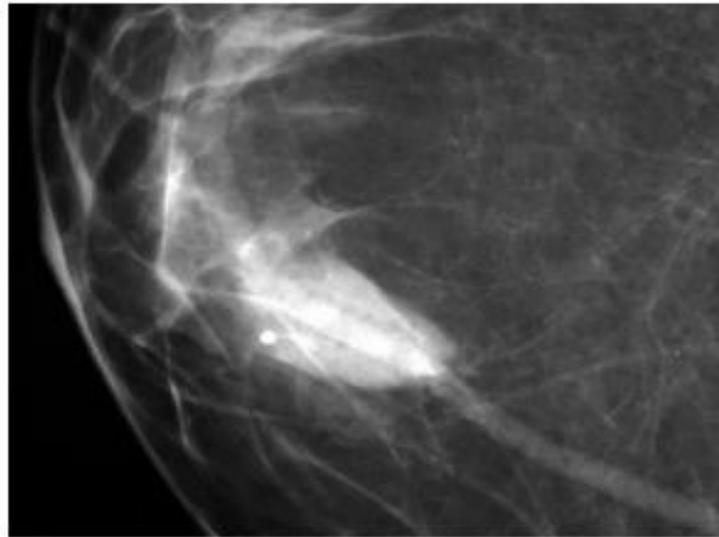
Figure 16. Epidermal inclusion cyst. (a) Mammogram (spot magnification view) shows a well-defined, dense, oval mass contiguous to the skin in the palpated region. (b) Transverse US image shows the hypoechoic lesion, which is contiguous to the epidermis (arrows) (the "claw sign") with increased through transmission.

- ◇ Tersering, **tumbuh dari folikel rambut yang tersumbat** pada sisi kulit dengan **trauma sebelumnya** seperti luka pembedahan atau gigitan serangga. 28

Kondisi jinak yang berhubungan dengan gynecomastia

Pseudoangiomatous stromal hyperplasia

- Tumor stromal jinak **dari myofibroblasts** dan disertai dengan glandular hyperplasia
- Sering ditemukan secara incidental pada gynecomastia.
- Kondisi berulang sering terjadi setelah reseksi



a.

b.

Figure 17. Pseudoangiomatous stromal hyperplasia. (a) Coned-down mammogram shows a dense circumscribed mass. (b) Transverse US image shows the solid hyperechoic mass with posterior acoustic shadowing.

Kondisi jinak yang berhubungan dengan gynecomastia

Intraductal Papilloma

- Proliferasi jinak dari intraductal mammary epithelium

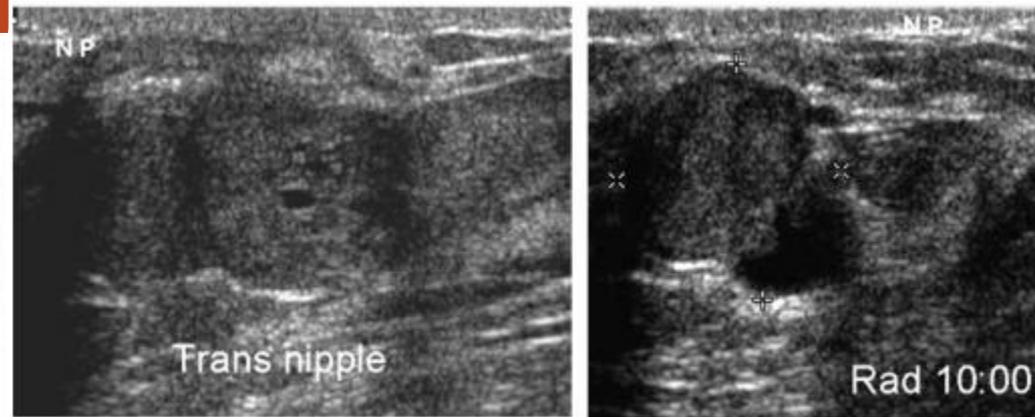
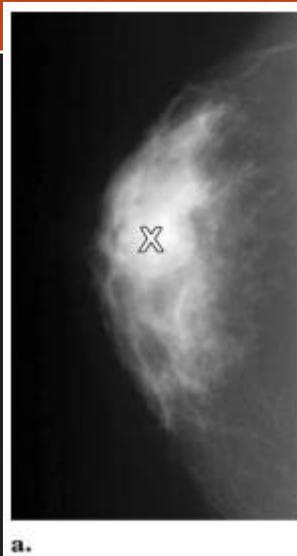


Figure 18. Intraductal papilloma. (a) Cranio-caudal mammogram shows a discrete dense mass against a background of subareolar density, which is consistent with gynecomastia. (b) Transverse US image shows multiple eccentric, subareolar, elongated, well-defined, hypoechoic masses, which have irregular shapes and are possibly confined to the lumina of markedly enlarged central ducts. (c) Longitudinal US image shows cystic areas, which may represent associated ductal ectasia.

KESIMPULAN

1

- 99% lesi pada payudara laki-laki jinak
- Penting bagi radiologist untuk mampu membedakan lesi yang curiga membutuhkan biopsi dari lesi jinak yang tidak membutuhkan pemeriksaan tambahan

2

- Mammografi merupakan pemeriksaan akurat untuk diagnosis gynecomastia jinak

3

- Pada pasien dengan temuan mammografi yang meragukan, US merupakan pemeriksaan lanjutan

4

- US pada axilla membantu staging

5

- Pada laki-laki, **lesi kistik sering menunjukkan malignant**, sehingga semua lesi kistik dan massa kompleks harus diperiksa sebagai lesi yang berpotensi malignant

6

- **Secondary signs terjadi lebih awal** pada laki-laki karena ukuran payudara lebih kecil, harus dilakukan pemeriksaan patologis
- Retraksi papilla, ulcerasi atau penebalan kulit, peningkatan trabekulasi payudara, dan limfadenopati axilla

Thank
you

