

Where is the leak?

Lymphoscintigraphy to the rescue!

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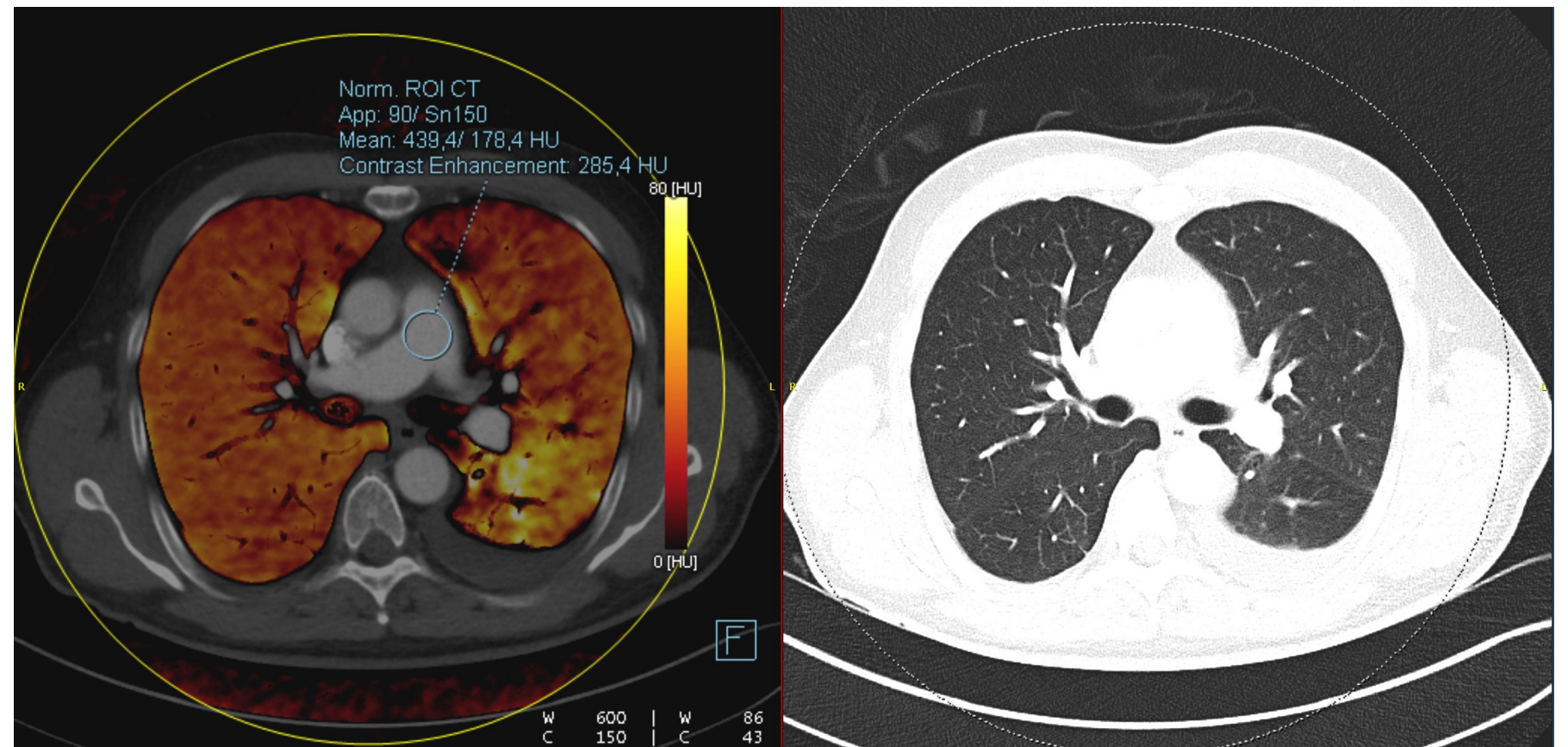
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Case presentation

- 62-year-old man
- Increasing shortness of breath, abdominal distention
- Weight gain: 4 kg
- No pain
- No fever/inflammation
- Normal diuresis
- Angio CT thorax: No PE, left sided pleural effusion
- Abdominal ultrasound and CT: large volume ascites



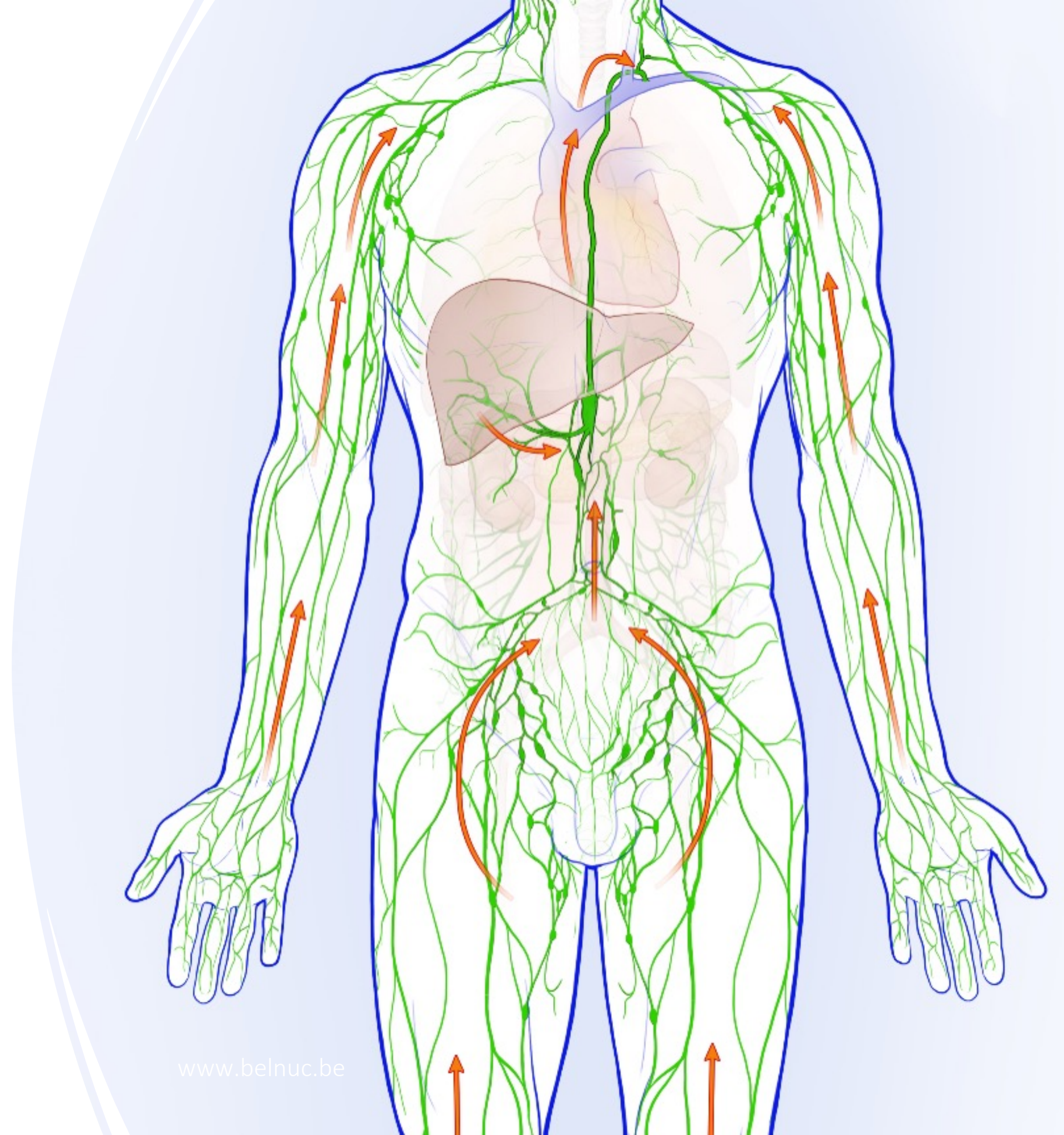
Patient history

- Prostate cancer, Gleason 4+3=7, iPSA 18 ng/ml
- Jan 2023: radical prostatectomy with pLND
- 3 weeks prior to admission



Chylous leak suspected !

- Refractory fluid buildup
- 6 liters of chylous fluid was evacuated
- Repeated ER admission for paracentesis



Chylous ascites

- Differential diagnosis

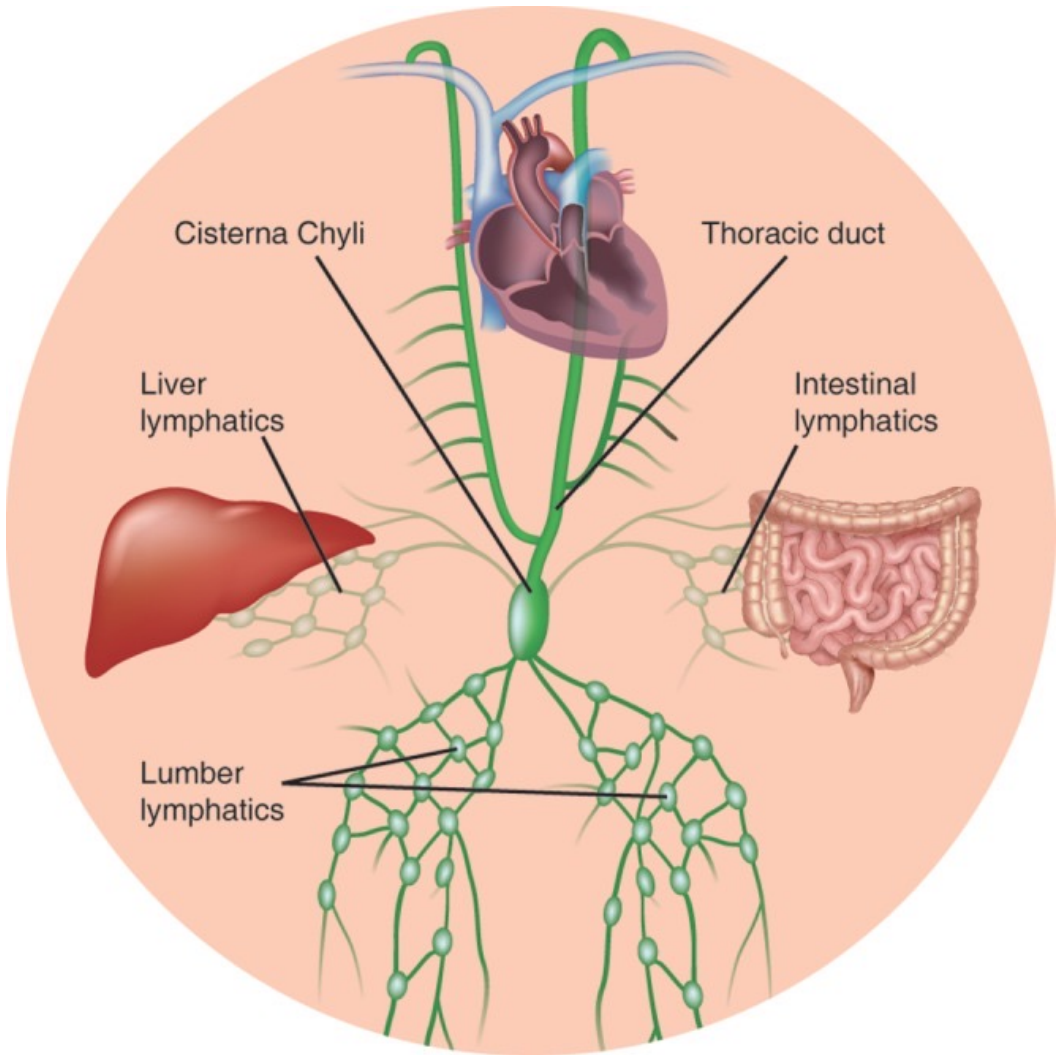


TABLE 1 Chylous ascites etiologies, mechanisms and causes

Etiology	Mechanism	Causes
Acquired	Thoracic duct obstruction or disruption	Trauma/surgery Infections (TB, filariasis), radiotherapy, autoimmune (SLE, sarcoidosis)
	Increased lymph production	Cirrhosis Cardiovascular disease
Fibrosis	Invasion and disruption of the normal lymph flow	Lymphomas Neuroendocrine tumors Sarcomas Leukaemia Solid organ malignancies
Congenital	Disrupted or dilated lymphatic vessels	Lymphangiectasia Waldmann's disease Yellow-nail syndrome Klippel-Trenaunay syndrome Lymphangioma

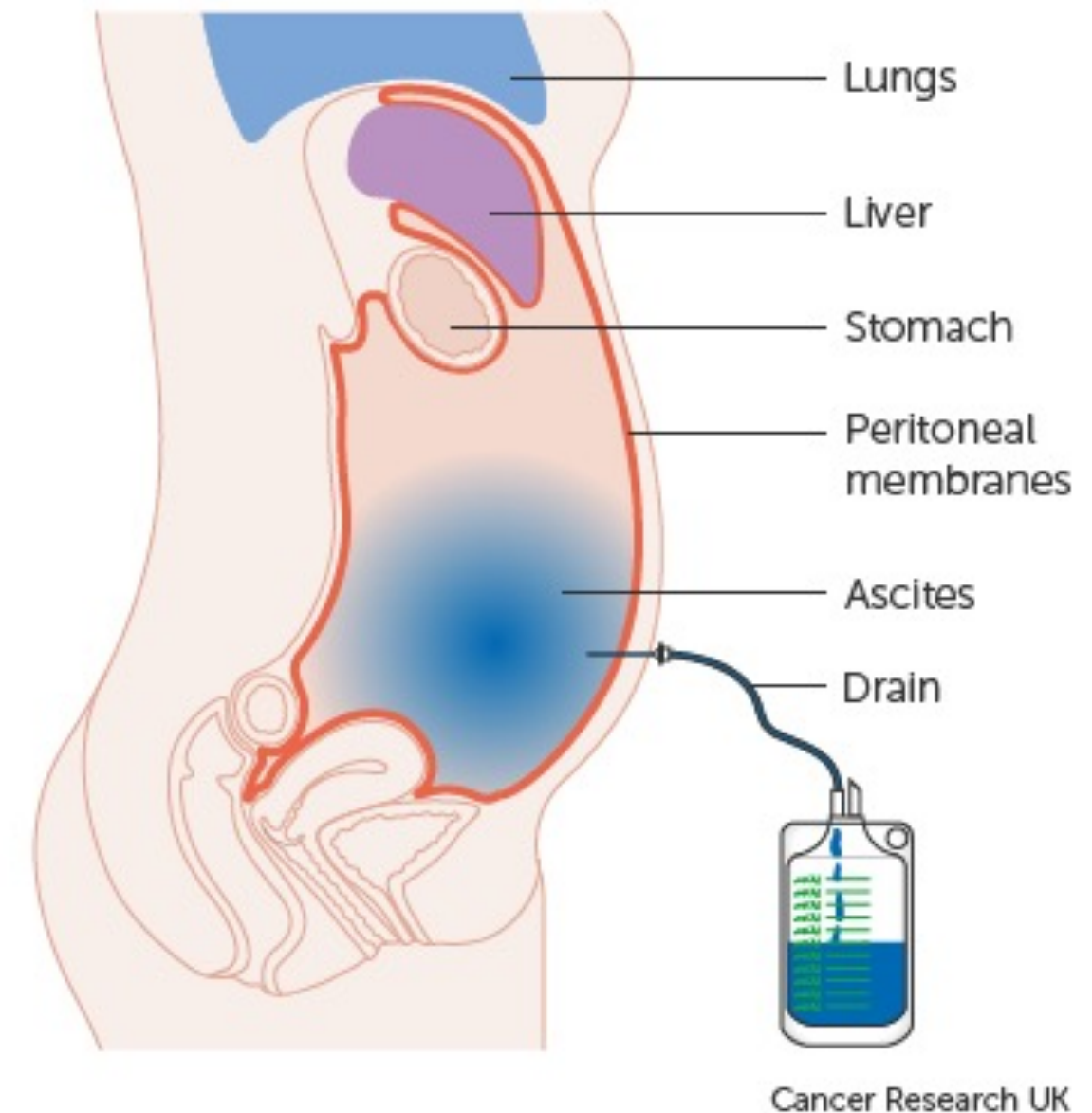
TB, tuberculosis, SLE, systemic lupus erythematosus.

Lizaola et al. Review article: the diagnostic approach and current management of chylous ascites. Aliment Pharmacol Ther. 2017



Chylous ascites

- Two classes of treatment
- Conservative: dietary, nutrition, therapies to diminish or reduce production of lymph
- Surgical: drainage rate is more than 1 l per day for a period of more than 5 days



Chylous ascites

- Life threatening
- Significant loss of fluid, plasma protein, fats and immunoregulatory lymphocytes
- Severe malnutrition
- Susceptibility to infection
- Mortality is high if left uncontrolled/untreated !



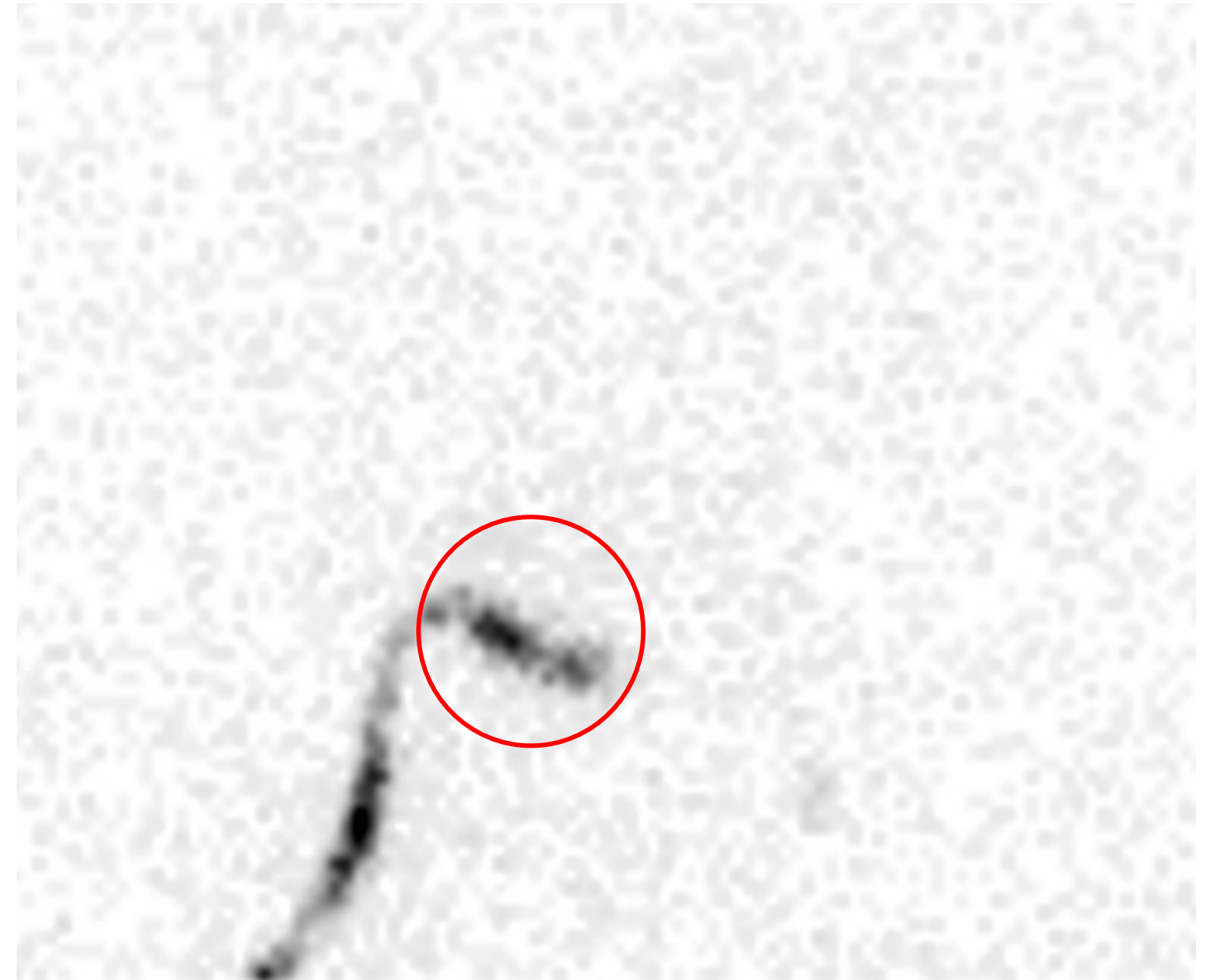
Nuclear Medicine

- Localization of lymphatic leak
- Lymphoscintigraphy to the rescue !



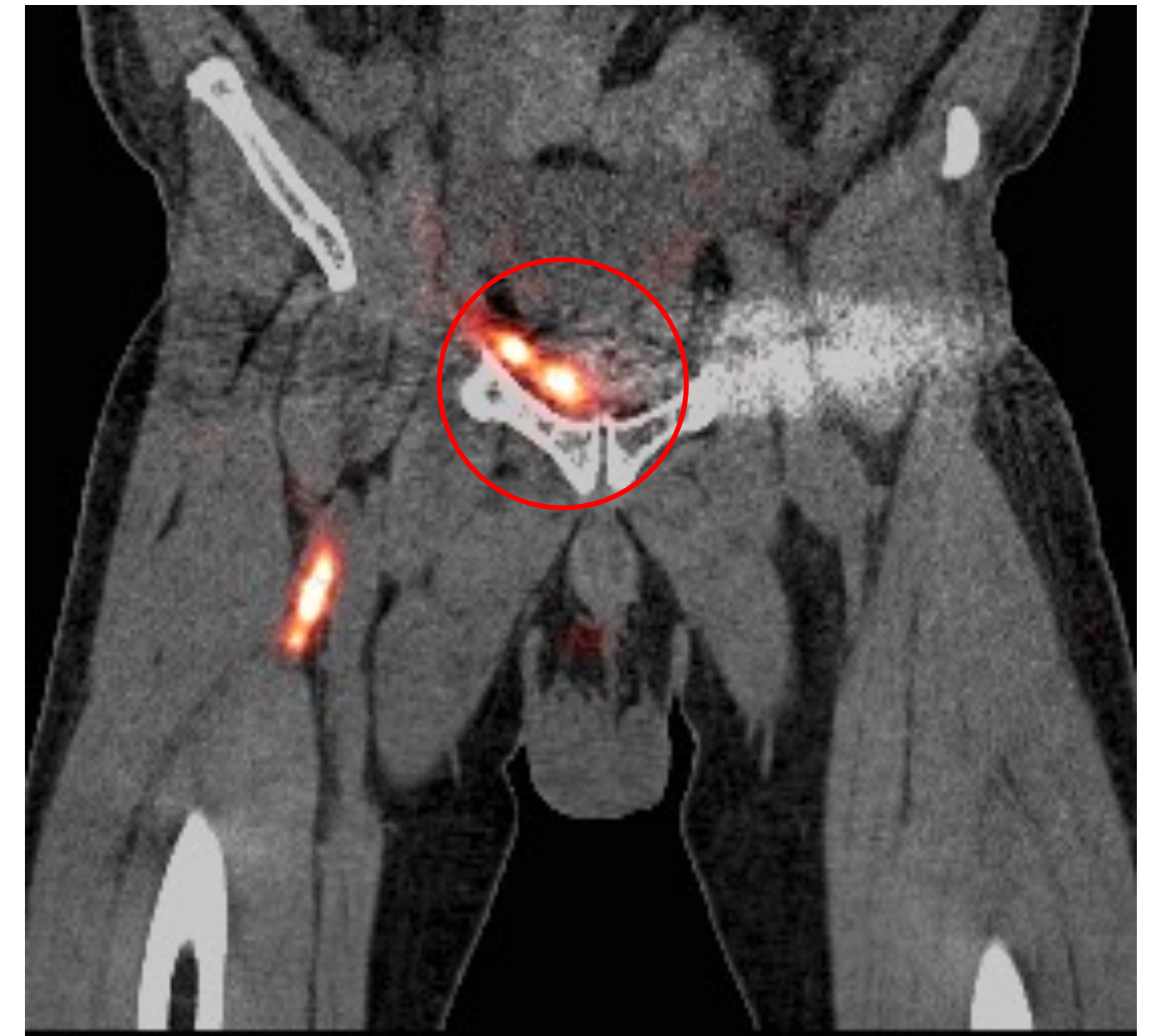
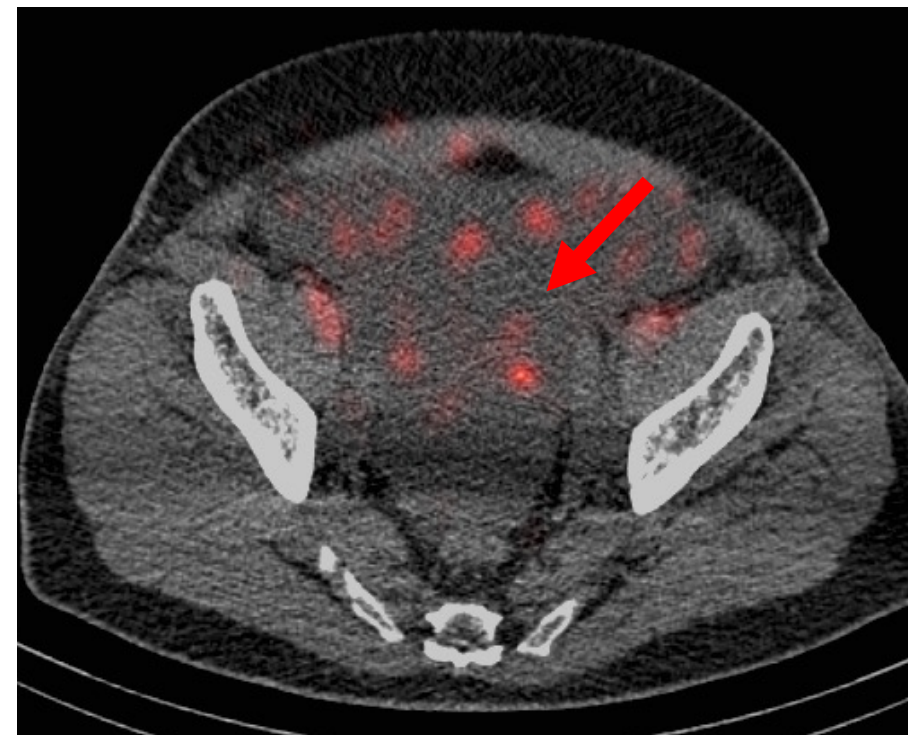
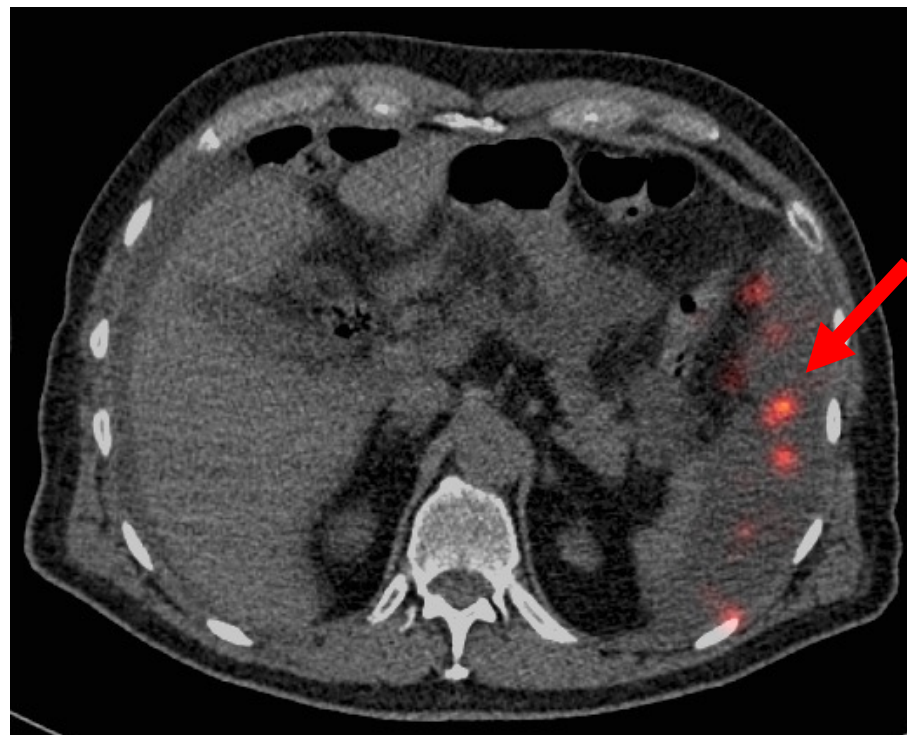
Lymphoscintigraphy

- ^{99m}Tc -nanocolloid subcutaneously
- Dynamic planar images
- Physiologic drainage stimulated by walking
- Location of leak suspected (red circle)



Lymphoscintigraphy

- SPECT/CT localization of leakage site (red circle)
- Confirmation of tracer accumulation in ascites (red arrow)

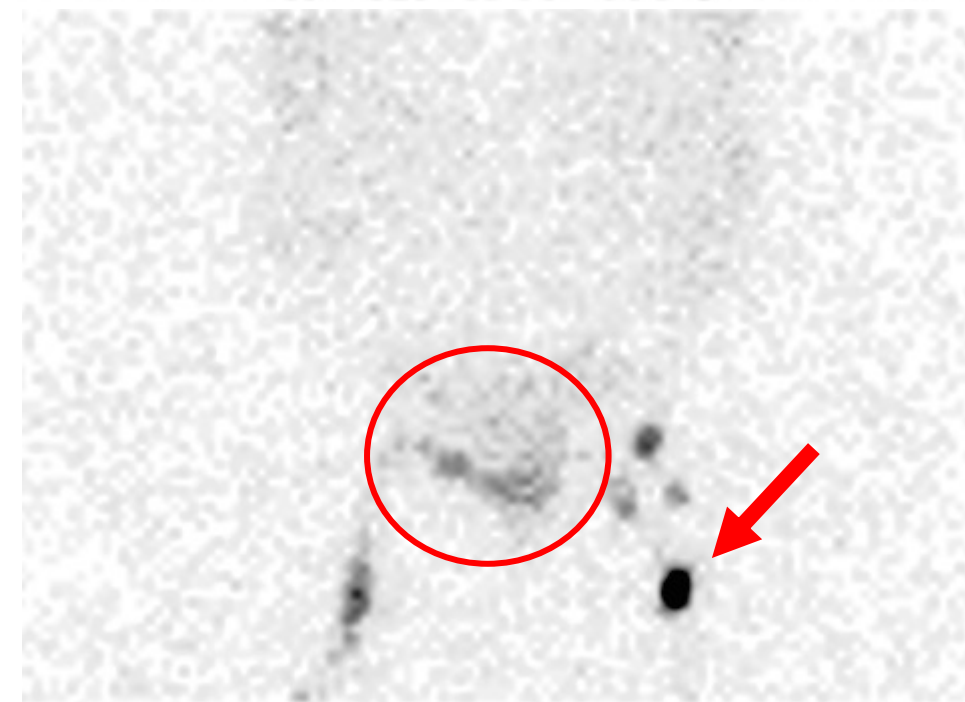


Lymphoscintigraphy

- Delayed planar scintigraphy
- Accumulation in both pleural cavities
- Leakage site (red circle)
- Physiologic tracer accumulation in left-sided lymph nodes (red arrow)



THORAX

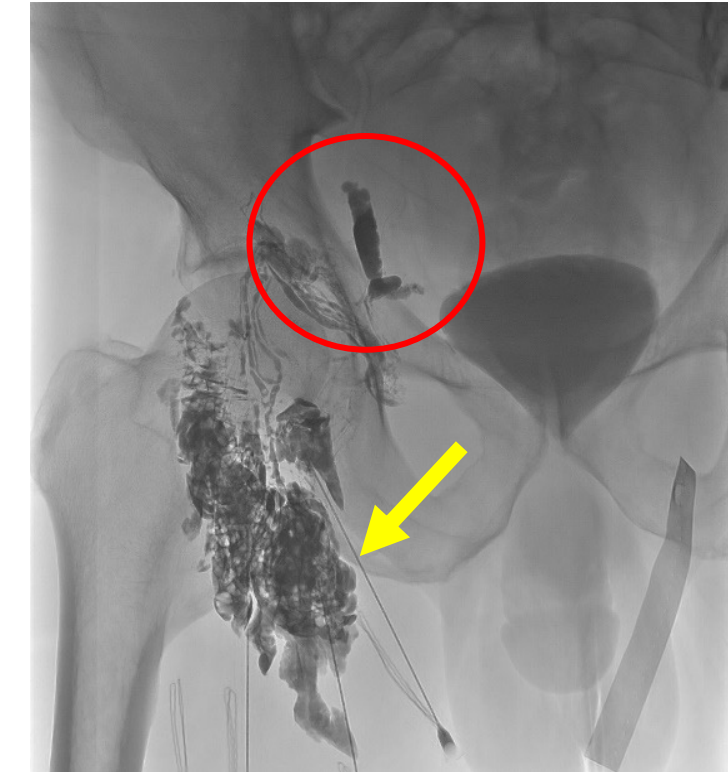
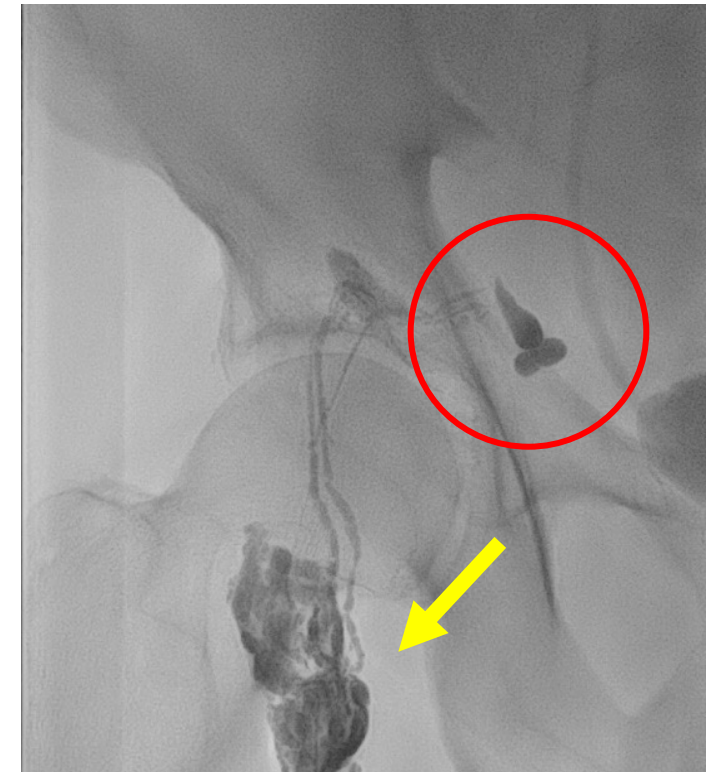


ABDOMEN



Endolymphatic embolization

- Interventional Radiology
- Lipiodol injection
- 3 right-sided inguinal lymph nodes (yellow arrow)
- Location of leak confirmed (red circle)
- The patient was successfully treated !



Lipiodol®
(Ethiodized Oil) Injection



Take home messages

- Mortality is high in patients with uncontrolled or untreated chyle leakage
 - Infection is our greatest fear
 - Treat the underlying etiology = find the leak !
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- Lymphoscintigraphy with SPECT/CT to the rescue !
 - LS played an instrumental role in both diagnosis and therapy

