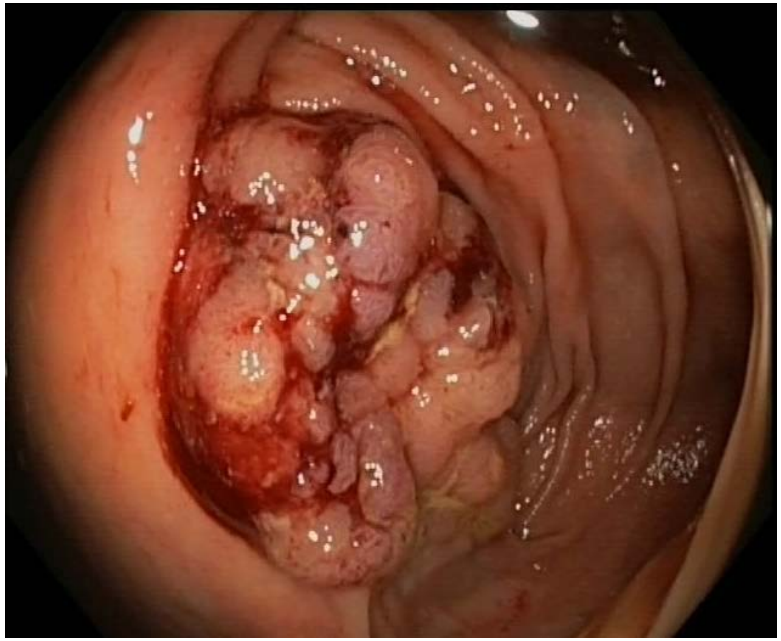
Pathologie digestive et imagerie

Master 1

Radiologie digestive , Master 1

- Quels organes ?
  - Tube digestif: de la bouche à l'anus
  - Foie, voies biliaires, pancréas
- Quelle technique ?
  - RX
  - Echographie
  - CT
  - IRM
  - Angiographie




10
11
12
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Marie-José Del Volgo

La douleur du malade

actualité de la psychanalyse

érès

http://missfrottis.blog.lemonde.fr/2011/07/

Tube digestif

- Pharynx – Oesophage - Estomac
  - Pathologie fonctionnelle
  - Pathologie organique
- Intestin Grêle-Colon-Rectum
  - Affections aiguës
    - Appendicite
    - Diverticulite
  - Occlusion
    - Grêle
    - Colique
  - **Ischémie**
    - **infarctus mésentérique**
    - **colite ischémique**
  - **Maladies Inflammatoires**
  - Tumeurs

Cours à option RX

Pharynx – œsophage - Estomac

- Pathologie fonctionnelle & organique
- Symptôme : Dysphagie
  - Haute
  - Basse

Difficulté de déglutition

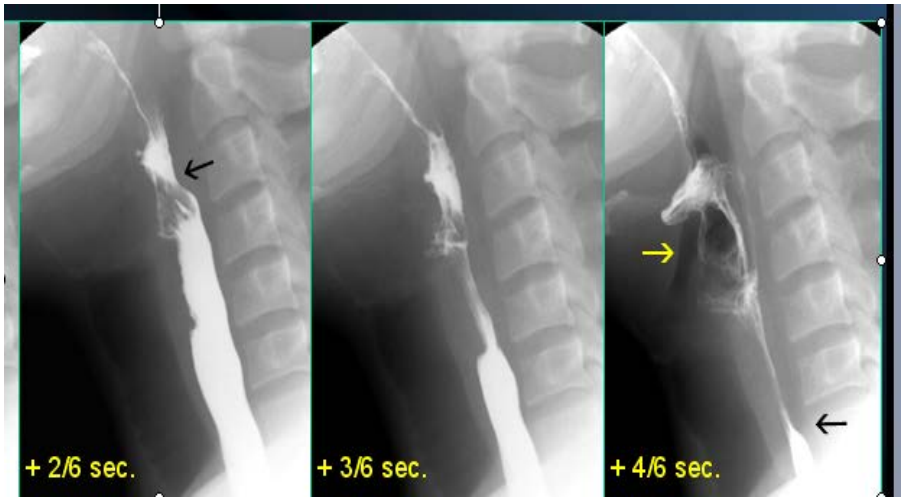
ou

sensation de blocage pendant la déglutition

Dysphagie Haute

MALADIES NEUROMUSCULAIRES AFFECTANT LA PHASE PHARYNGEE DE LA DEGLUTITION

- Du système nerveux central
  - accidents vasculaires (20-40 %)
  - tumeurs , traumatisme
  - poliomyélite , SEP , SLA
  - …
- Musculaires
  - polymyosite , dermatomyosite
  - myopathie oculo-pharyngée
  - maladie de Steinert
  - ...
- De la jonction myoneurale
  - myasthénie grave (thymome)
  - syndrome de Lambert-Eaton
- Des nerfs périphériques
  - traumatisme , compression
  - névrite : diabète , éthylisme médicaments (corticoïdes, immunosuppresseurs, antidépresseurs…)
- Idiopathique
  - achalasie du crico-pharyngien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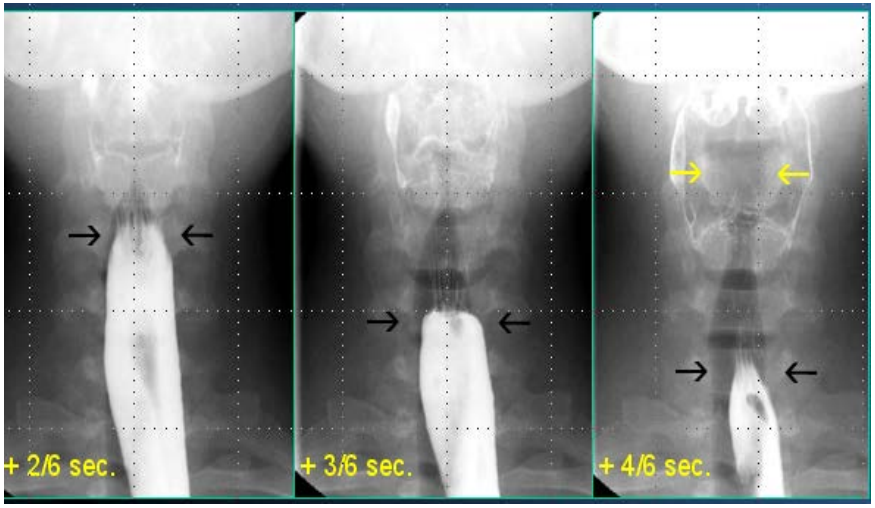
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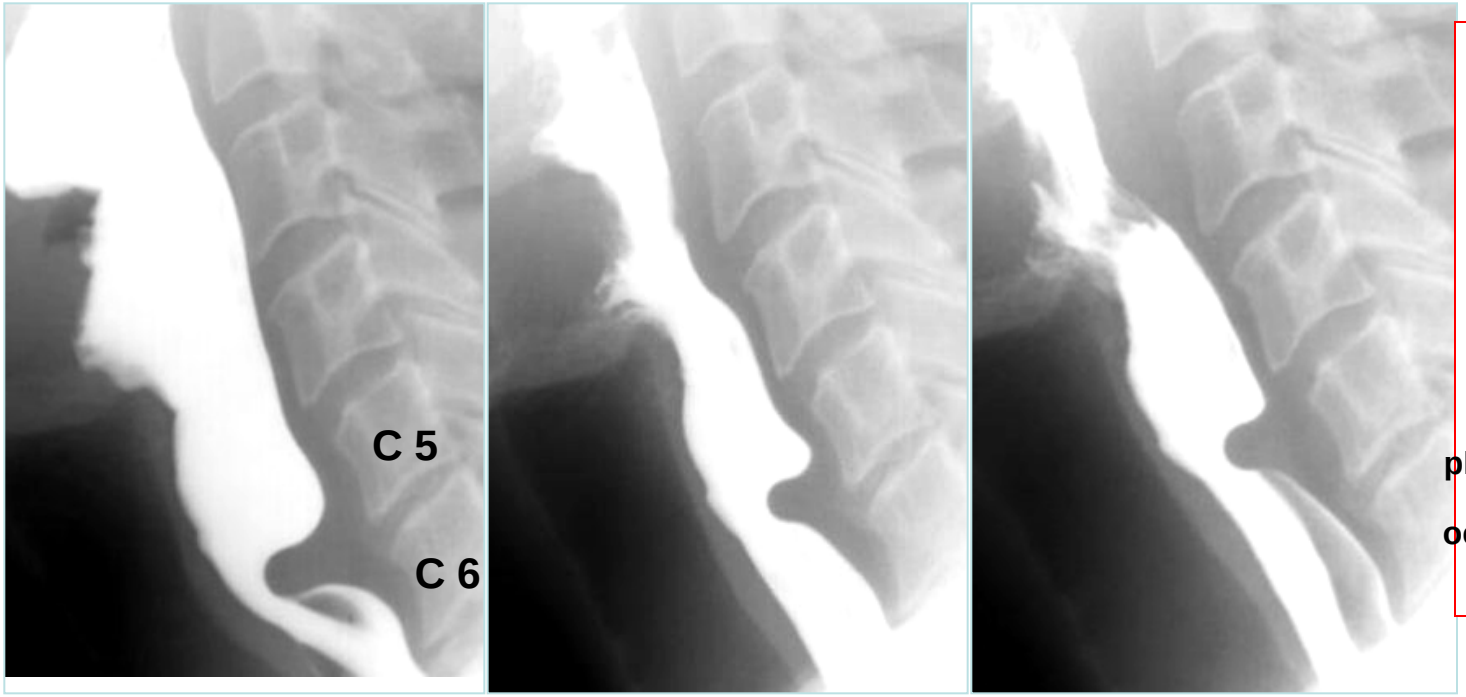
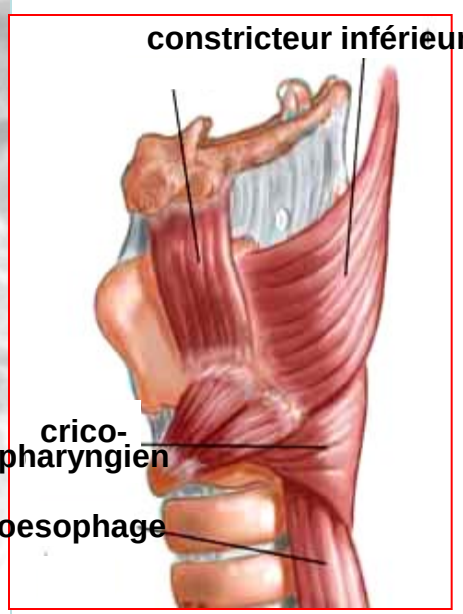
Penetration/Aspiration Scale

No Penetration or Aspiration	1	Contrast Does Not Enter the Airway
PENETRATION	2	Contrast Enters the Airway, Remains Above Voca Folds, No Residue
	3	Contrast Remains Above Vocal Folds, Visible Residue Remains
	4	Contrast Contacts vocal Folds, No Residue
	5	Contrast Contacts Vocal Folds, Visible Residue Remains
ASPIRATION	6	Contrast Passes Glottis, No Sub-Glottic Residue Visible
	7	Contrast Passes Glottis, Visible Sub-Glottic Residu Despite Patient's Response
	8	Contrast Passes Glottis, Visible Sub-Glottic Residu Absent Patient Response

(Rosenbek et al, *Dysphagia*, 1996; Robbins et al, *Dysphagia*, 1999)

In Netter, Atlas d'anatomie humaine, Masson, 2007





ACHALASIE DU MUSCLE CRICO-PHARYNGIEN

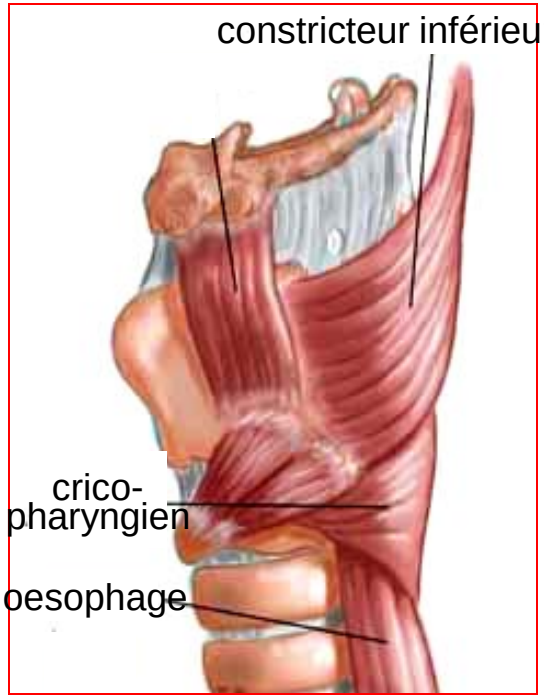
OU DEFAUT DE RELAXATION DU SPHINCTER OESOPHAGIEN SUPERIEUR (SOS)

OU " BARRE " DU SOS

encoche postérieure persistante (C5-C6)
phénomène du jet

ACHALASIE DU SPHINCTER OESOPHAGIEN SUPERIEUR (SOS)

(défaut de relaxation du muscle crico-pharyngien)



causes

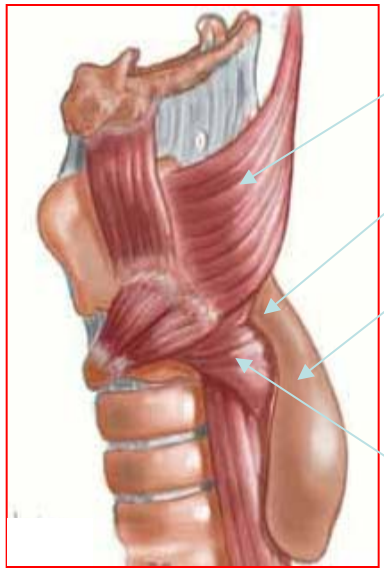
- hypocontractibilité des constricteurs
- AVC
- idiopathique
- " réactionnelle "
  - reflux gastro-oesophagien (RGO)
  - obstructions oesophagiennes organiques ou fonctionnelles

➔ " proéminence " du SOS

In Netter, Atlas d'anatomie humaine, Masson, 2007

PROEMINENCE DU CRICOPHARYGIEN
DYSPHAGIE REFEREE AU COU
(30 % = LESIONS OBSTRUCTIVES
OESOPHAGIENNES INFERIEURES OU RGO)

exploration de la totalité de l'oesophage



In Netter, Atlas d'anatomie humaine, Masson, 2007

Dysphagie basse

CAUSES DE DYSPHAGIE BASSE

- TROUBLES FONCTIONNELS 11%
- LESIONS ORGANIQUES 89%
  - hernie hiatale, oesophagite et sténose peptiques 53%
  - anneau de Schatzki 15%
  - sténose néoplasique 12%
  - autres (compression, tumeurs bénignes, sténose caustique …) 9%

Ott DJ , et al ; Gastointest Radiol 6 :109 , 1981

TROUBLES FONCTIONNELS DE L'OESOPHAGE

- PRIMAIRES
  - achalasie
  - spasmes diffus
  - presbyoesophage

- SECONDAIRES
  - Sclérodermie
  - Oesophagite
    - peptique ,caustique, infectieuse
  - Pseudo-achalasies :
    - Sténoses bénignes,malignes,iatrogènes
  - Maladie de Chagas
  - Diabète , éthylisme …
  - Médicaments
    - Parasympathicolytiques
  - Myopathies

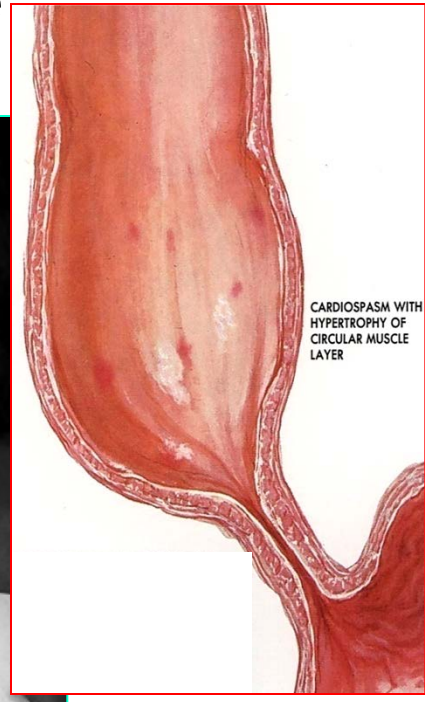
= tout ce qui modifie la motilité oesophagienne

PERISTALTIQUE PRIMAIRE

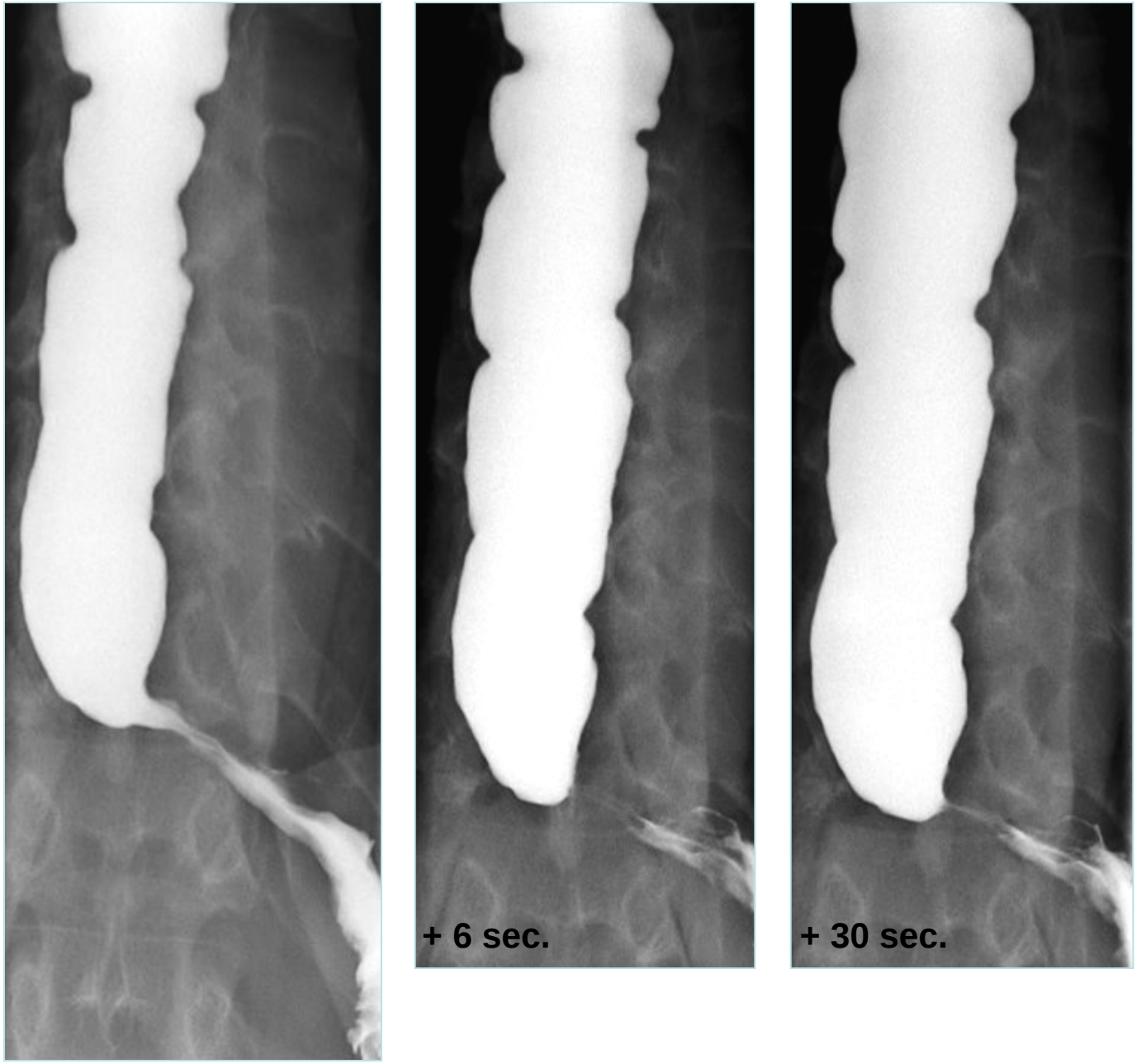
(1- 4 cm / sec.)

ACHALASIE

absence
- de péristaltique
- de relaxation du SOI
- d’ air gastrique

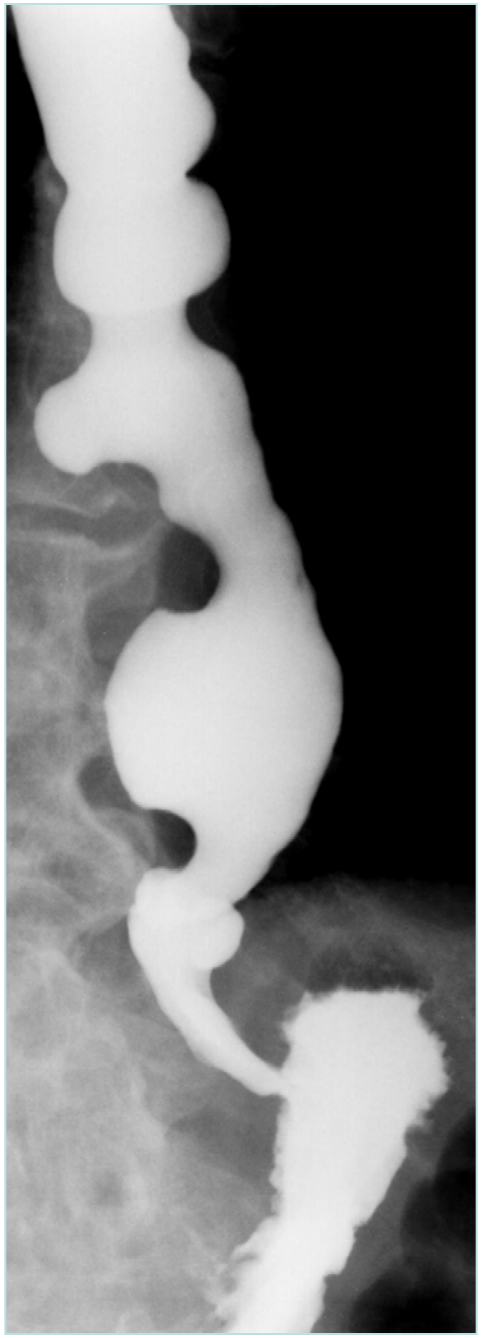


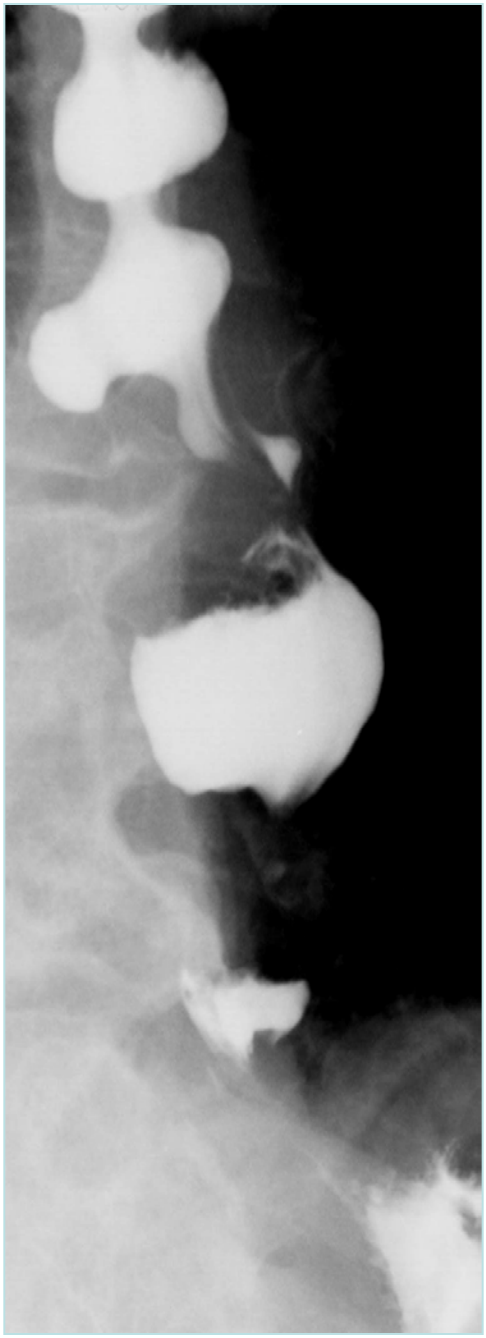
In Netter, Atlas d’anatomie humaine, Masson, 2007



ACHALASIE VIGOUREUSE

(+ contractions tertiaires répétitives)

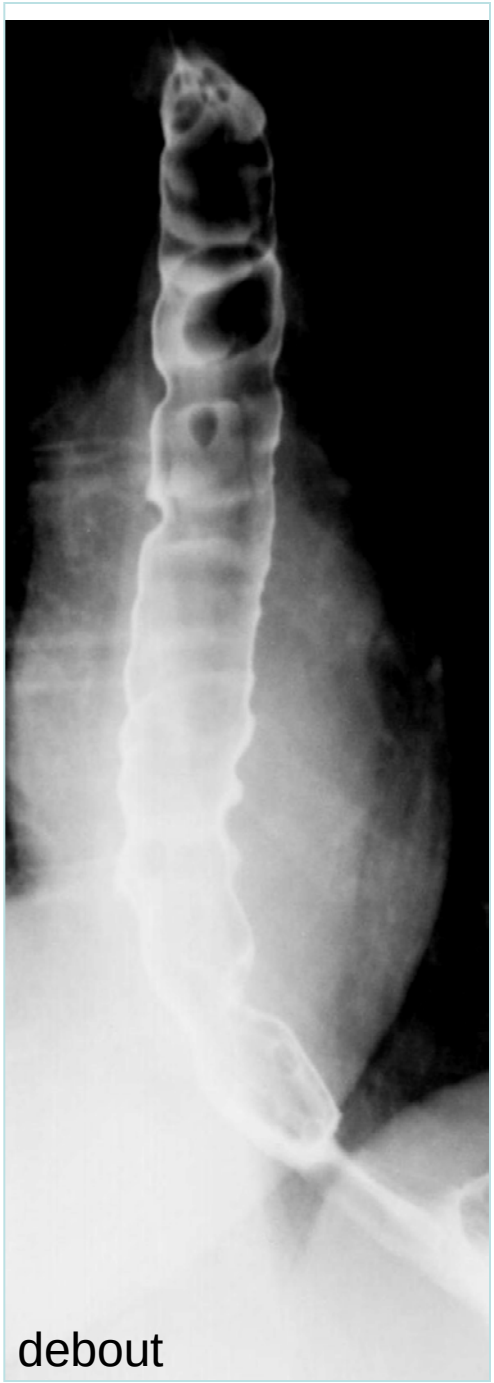


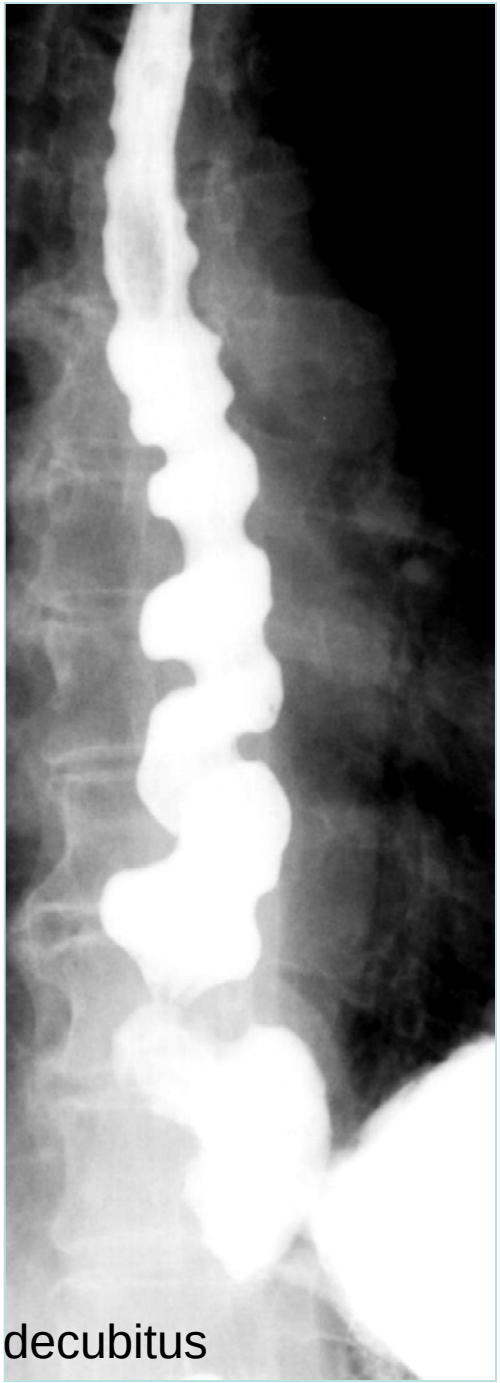


SPASMES DIFFUS

contractions
tertiaires
profondes

" curling " esophagus





PRESBYOESOPHAGE

contractions
tertiaires
prolongées

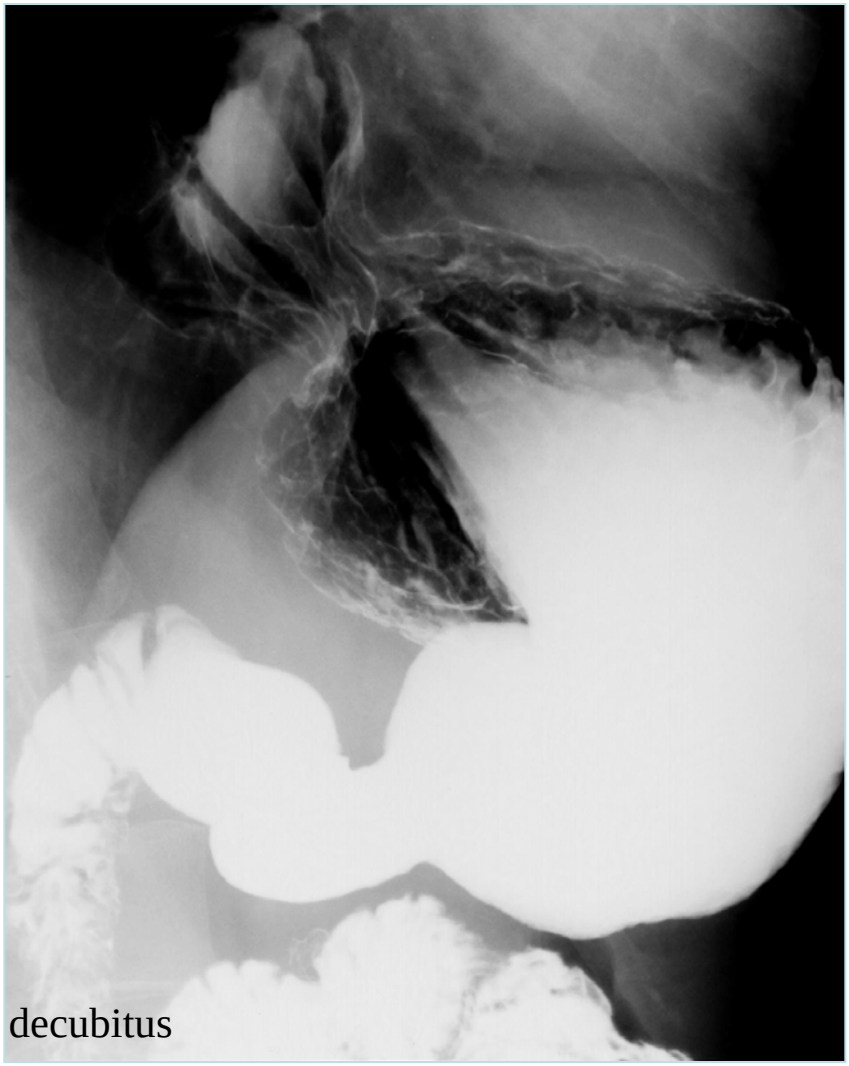
" corkscrew " esophagus

CAUSES DE DYSPHAGIE BASSE

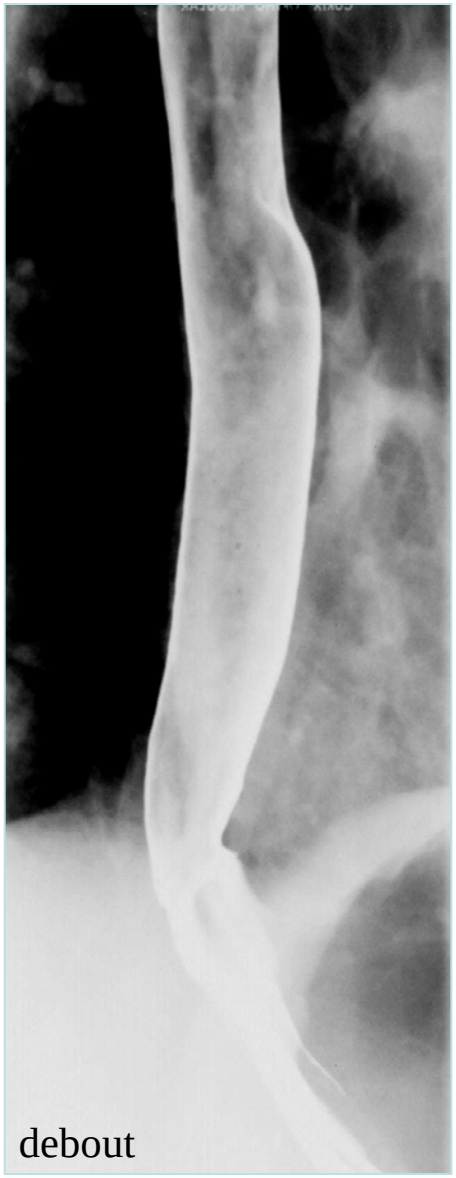
- TROUBLES FONCTIONNELS 11%
- LESIONS ORGANIQUES 89%
  - hernie hiatale, oesophagite et sténose peptiques 53%
  - anneau de Schatzki 15%
  - sténose néoplasique 12%
  - autres (compression, tumeurs bénignes, sténose caustique …) 9%

Ott DJ , et al ; Gastointest Radiol 6 :109 , 1981

NORMAL


decubitus

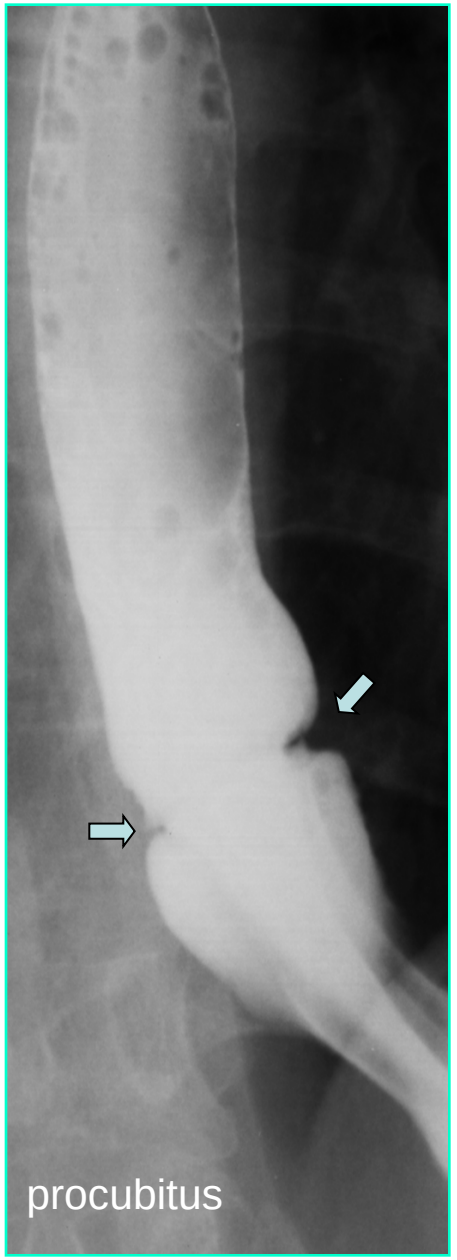

decubitus


debout

hernie hiatale axiale + RGO

réductibilité

NORMAL



HERNIE AXIALE ET Shatzki

STEAK
HOUSE
SYNDROME

↓

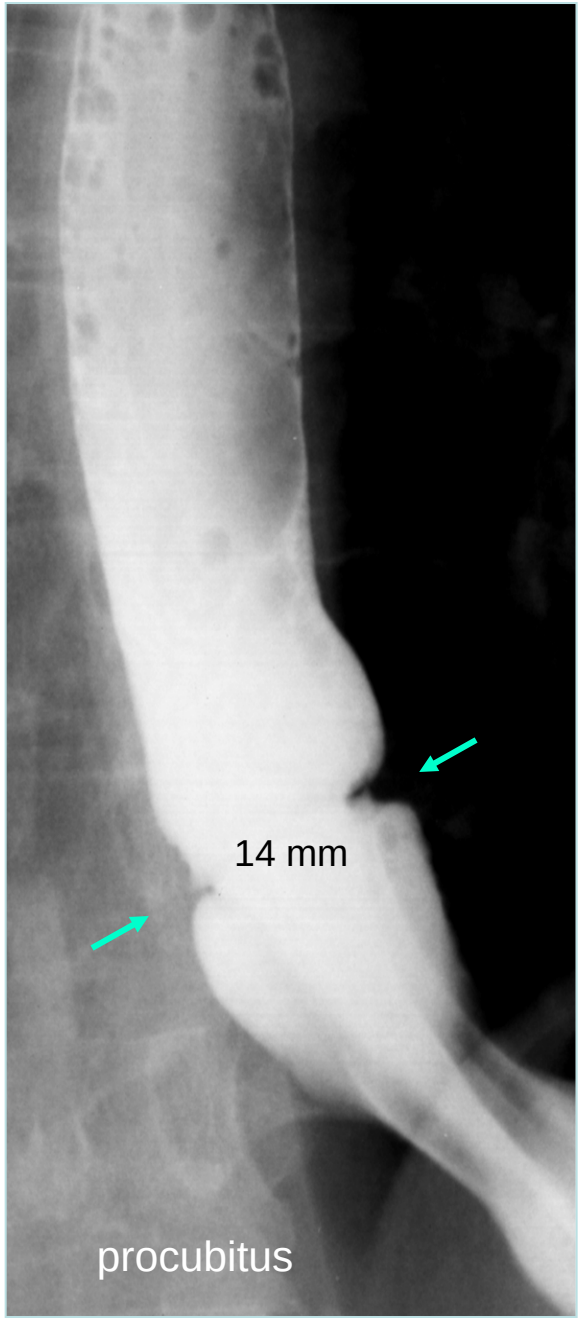
endoscopie
négative

↓

OESOPHAGOGRAPHIE

↓

ANNEAU DE
SCHATZKI

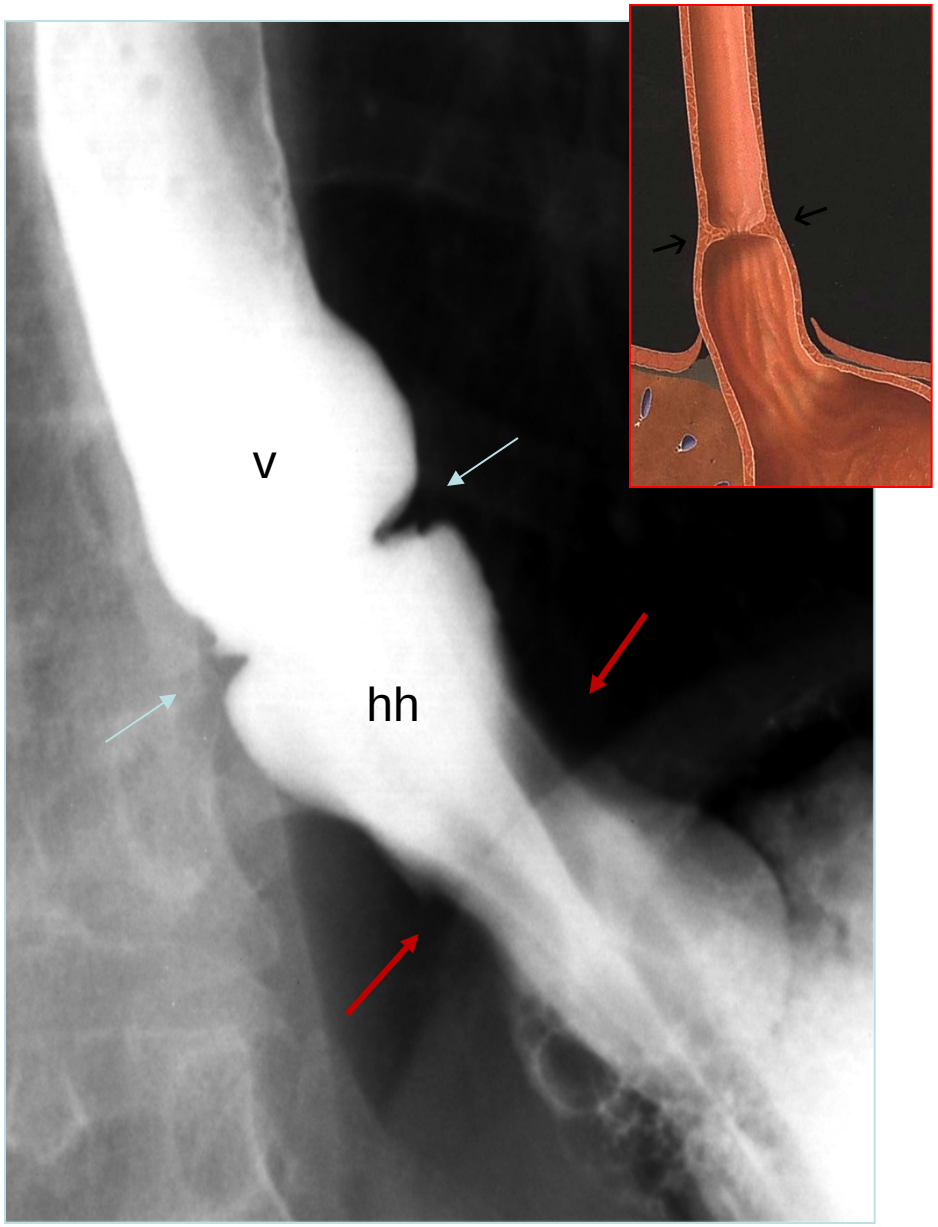


PETITE HERNIE HIATALE
+ ANNEAU DE SCHATZKI

v : vestibule (oesophagien)

→ ← anneau de Schatzki

- hh : hernie hiatale (gastrique)
- → ← hiatus diaphragmatique



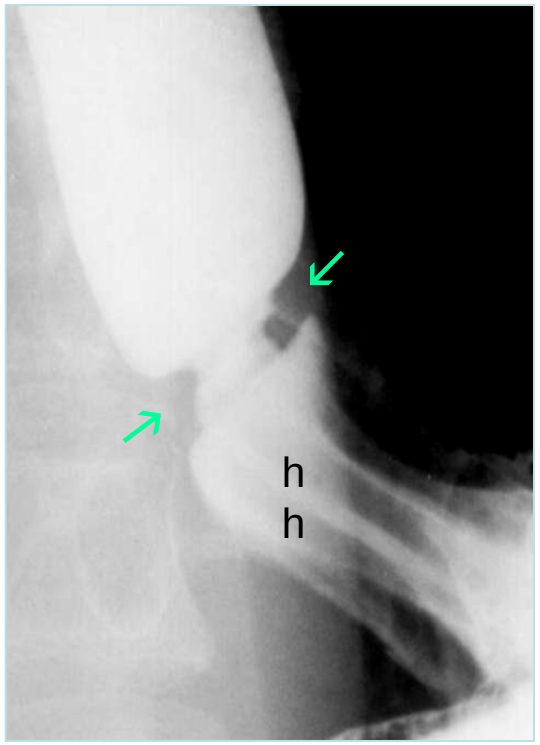
Schatzki R , et al ; AJR 70 : 911 , 1953

In Netter, Atlas d'anatomie humaine, Masson, 2007

RING DE SCHATZKY

symptomatique

< 13 mm



Œsophage et lésions organiques

- Cancer
- Ruptures

TNM Staging System for Colorectal Cancer

Table 2. TNM Staging System for Colorectal Cancer. *

Stage	TNM Classification	Five-Year Survival
		%
I	T1–2, N0, M0	>90
IIA	T3, N0, M0	60–85
IIB	T4, N0, M0	
IIIA	T1–2, N1, M0	25–65
IIIB	T3–4, N1, M0	
IIIC	T (any), N2, M0	
IV	T (any), N (any), M1	5–7

Primary tumor (T)

- TX: Primary tumor cannot be assessed
- Tis: Carcinoma in situ
- T1: Tumor invades submucosa
- T2: Tumor invades muscularis propria
- T3: Tumor penetrates muscularis propria and invades subserosa
- T4: Tumor directly invades other organs or structures or perforates visceral peritoneum

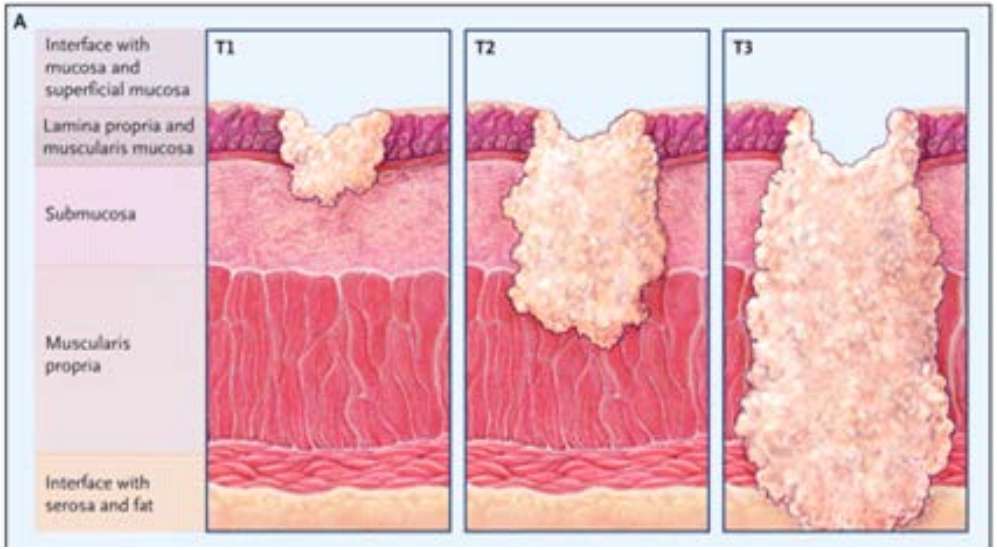
Nodal status (N)

- NX: Regional lymph nodes cannot be assessed
- N0: No metastases in regional lymph nodes
- N1: Metastases in one to three regional lymph nodes
- N2: Metastases in four or more regional lymph nodes

Distant metastases (M)

- MX: Presence or absence of distant metastases cannot be determined
- M0: No distant metastases detected
- M1: Distant metastases detected

* The information is from Greene et al.[7]

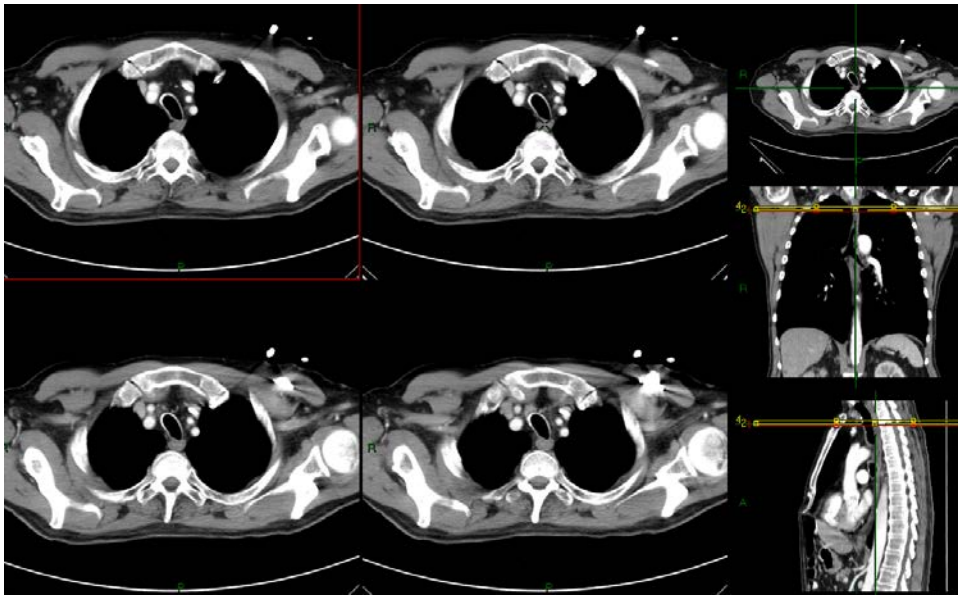


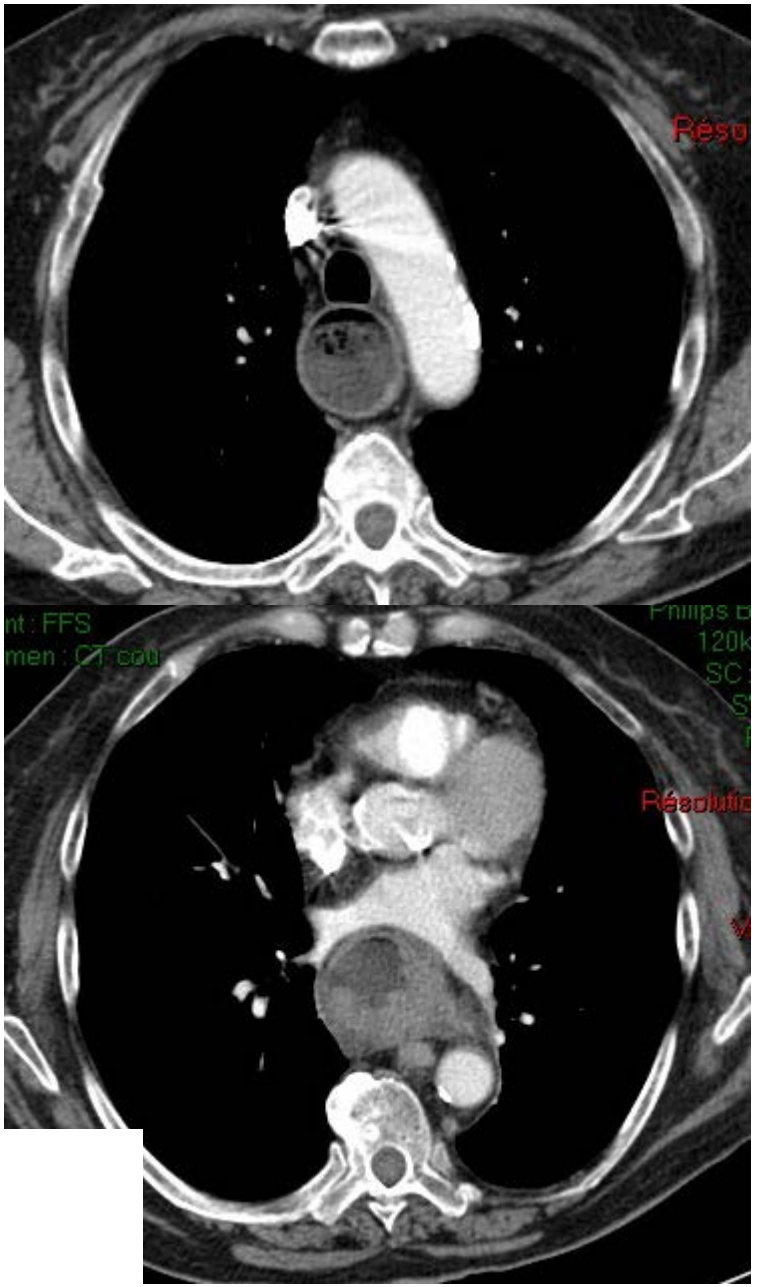
Meyerhardt, J. A. et al. N Engl J Med 2005;352:476-487

The NEW ENGLAND JOURNAL of MEDICINE

Œsophage

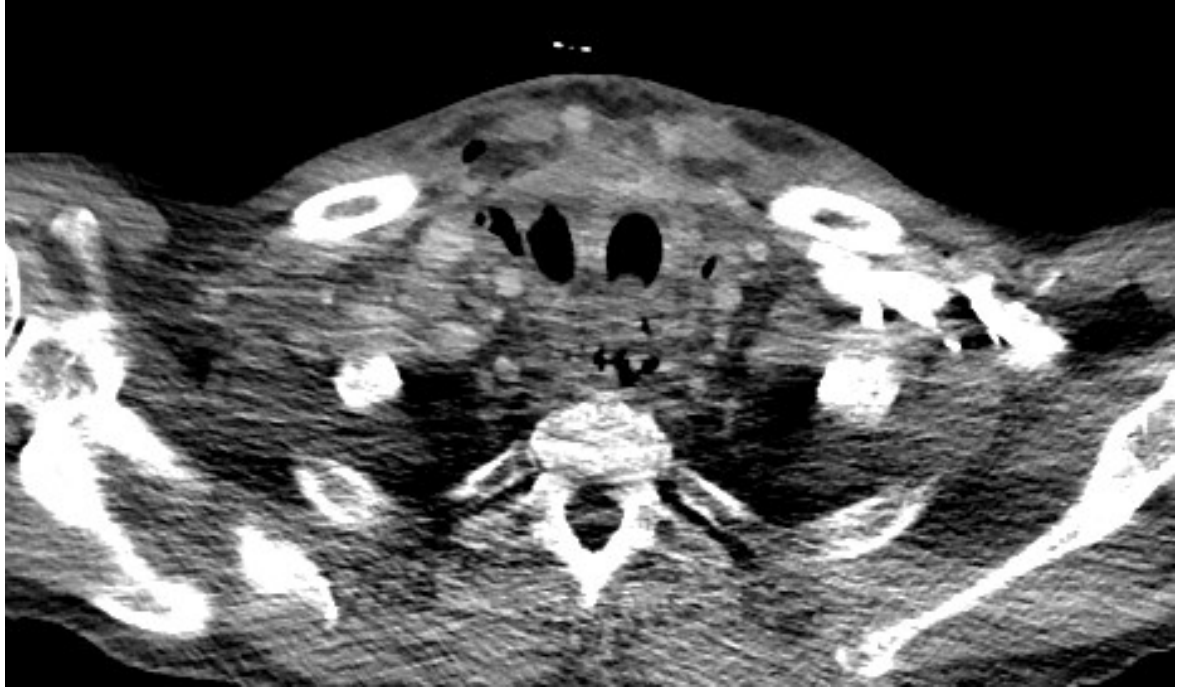
	US endo	RX	CT	Pet CT
Détection	+			+
Stadification	+		T4, N, M	+
Suivi	+	+/- post op	+	+



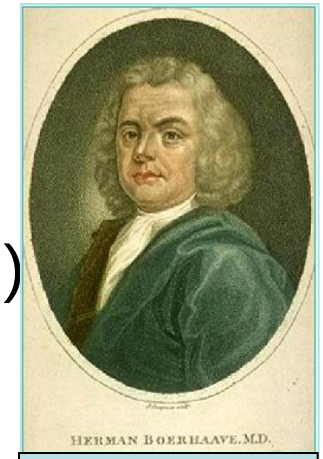


Épaisseur de la paroi de l'œsophage:
= 5 mm en contraction, 3 mm si distendu
= jamais > 5,5 mm
= 1 mm de plus chez l'homme

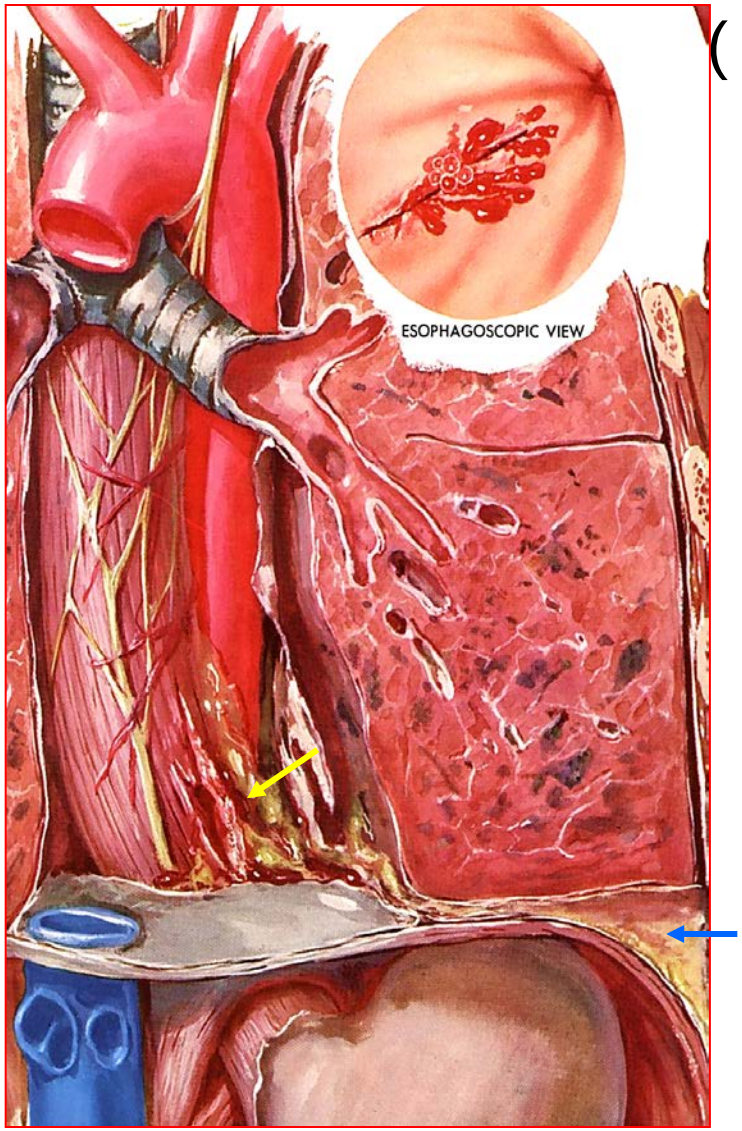
1668-1738 (1724)



rupture spontanée de l'œsophage (syndrome de Boerhaave)



1668-1738 (1724)



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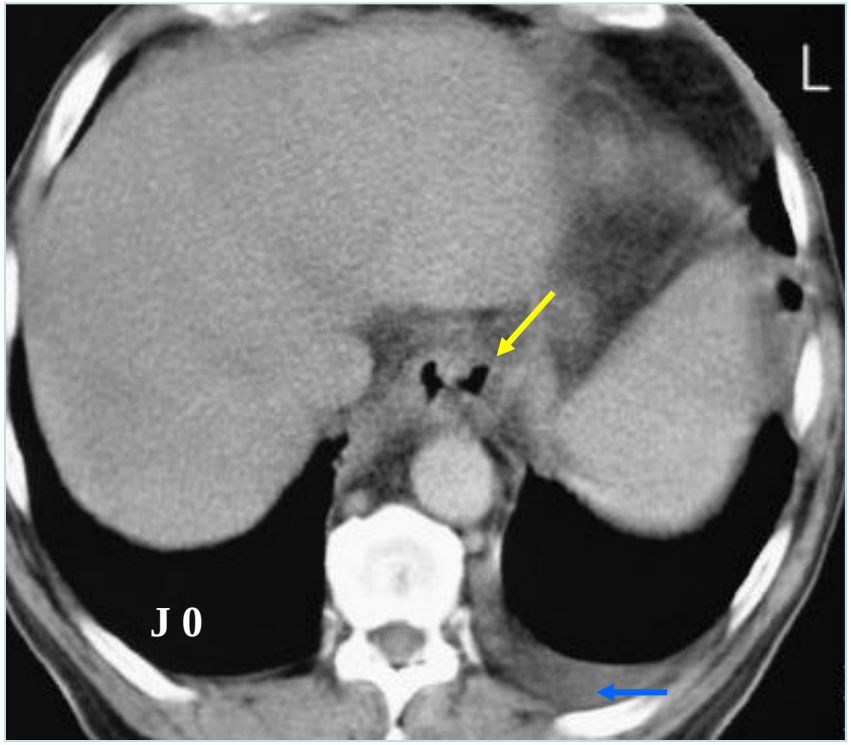
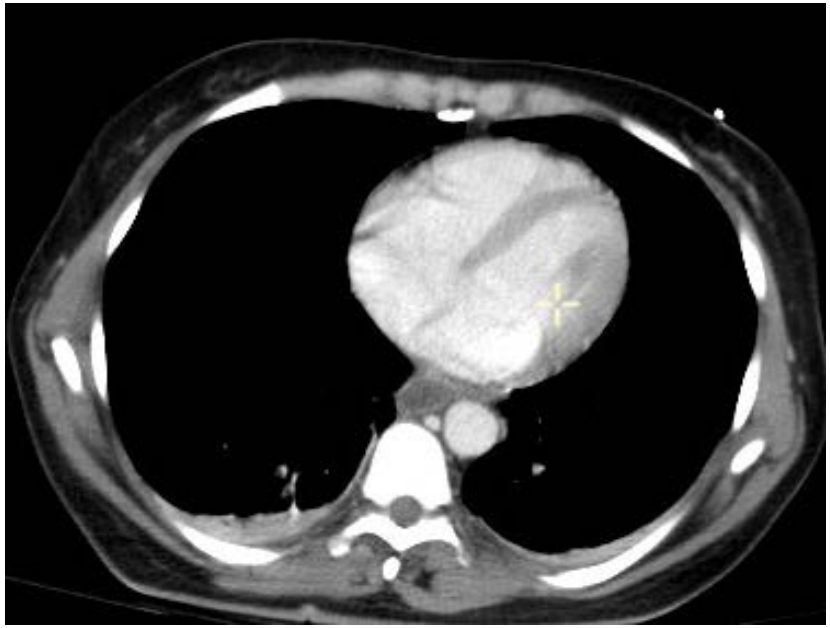


collection aérique para-oesophagienne
épanchement pleural gauche

Varias

- Varices oesophagiennes
  - Les voir
  - Les complications possibles
- Oesophagite
  - Mycotique
  - Caustique
  - Radique



Radiologie et estomac

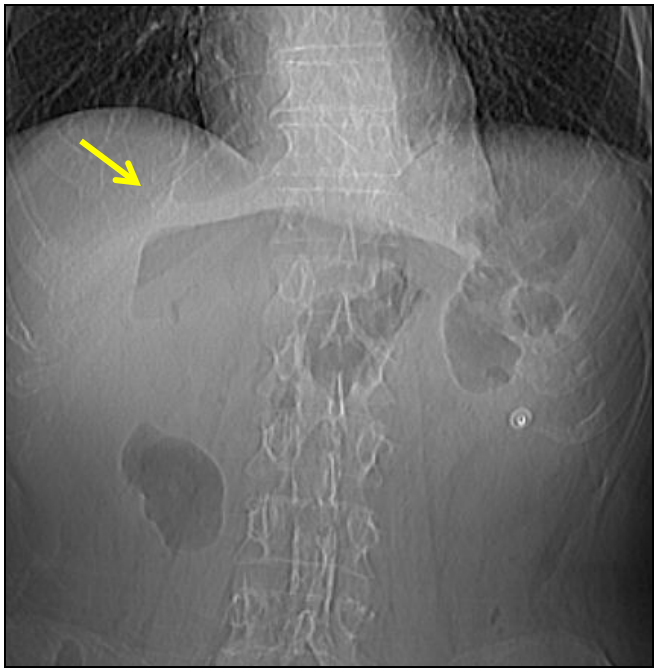
- Inflammation
  - Ulcère
  - Perforation
- Hémorragies
- Occlusions
  - Volvulus
  - Bouveret
- Post-op
  - Chirurgie de l’obésité
  - Chirurgie oncologique
- Tumeur

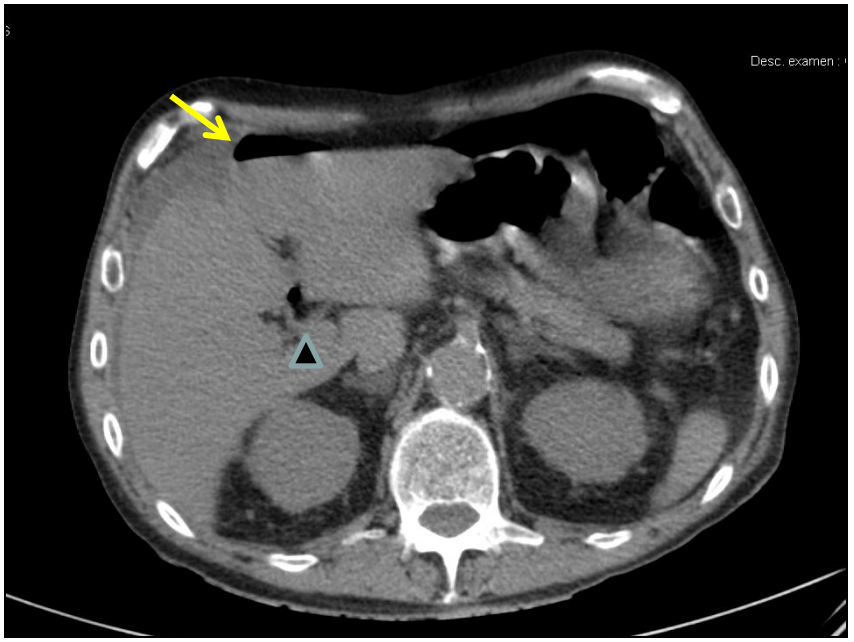
Estomac, Inflammation et Imagerie

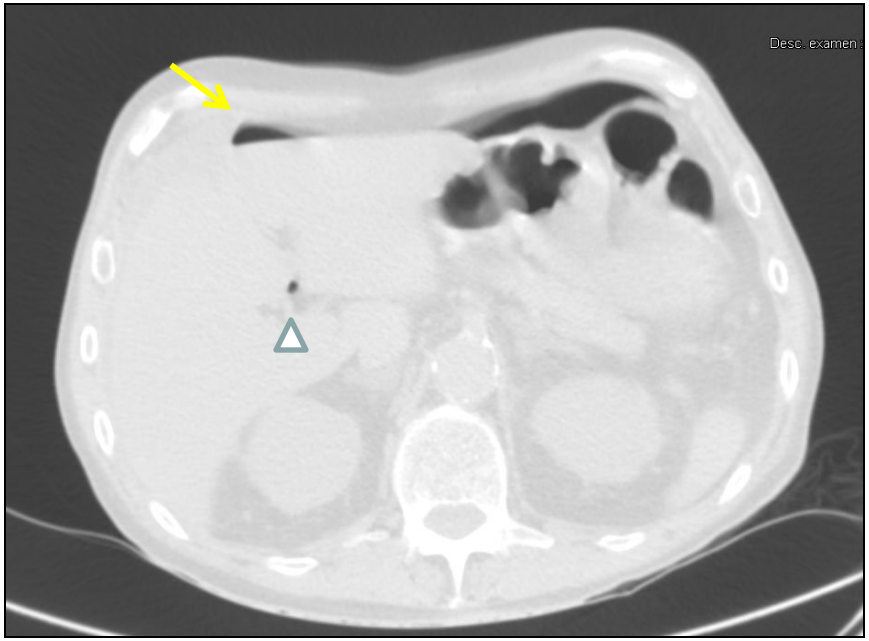
- Gastrites, Ulcères : endoscopie

Estomac, Inflammation et Imagerie

- Gastrites, Ulcères : endoscopie
- Perforation: Imagerie



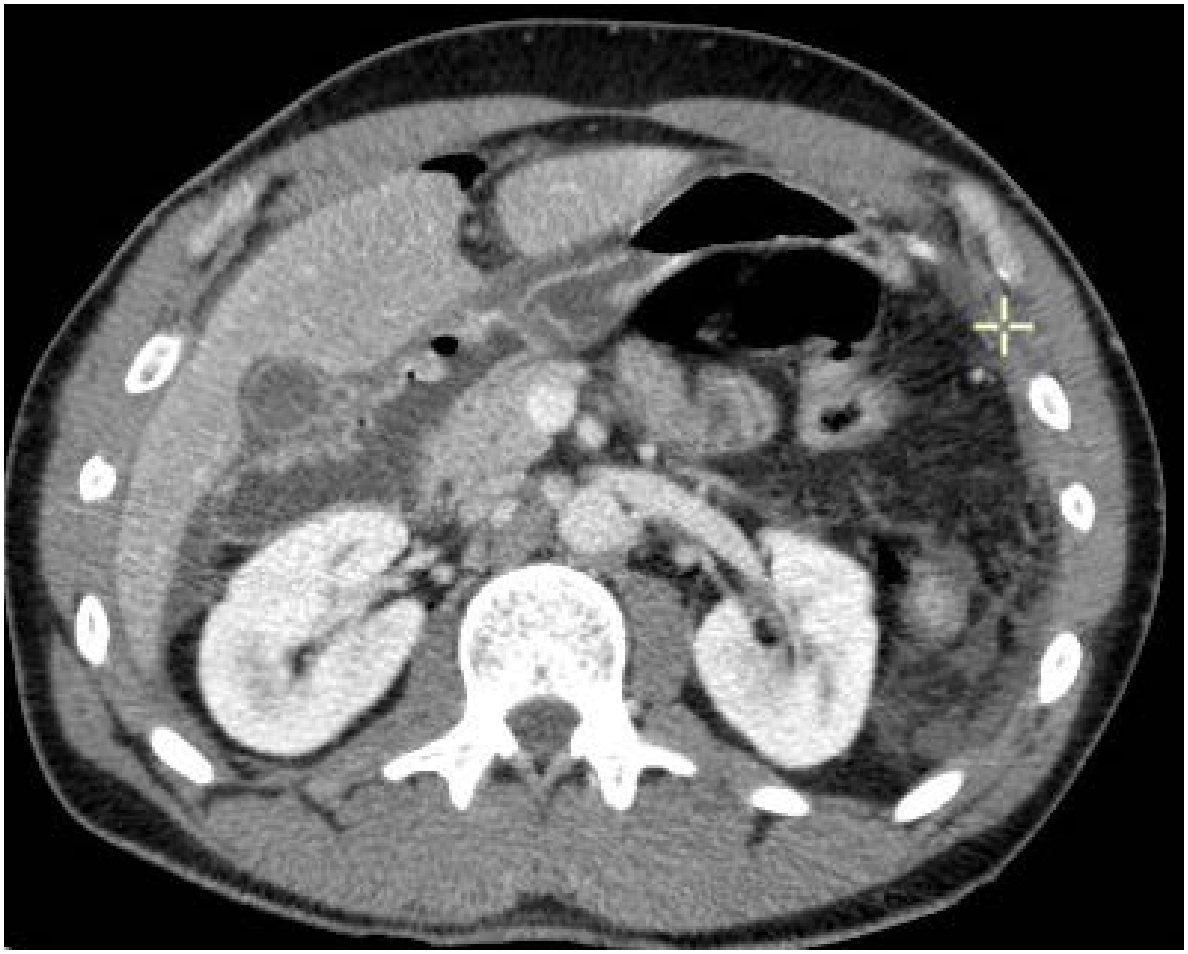


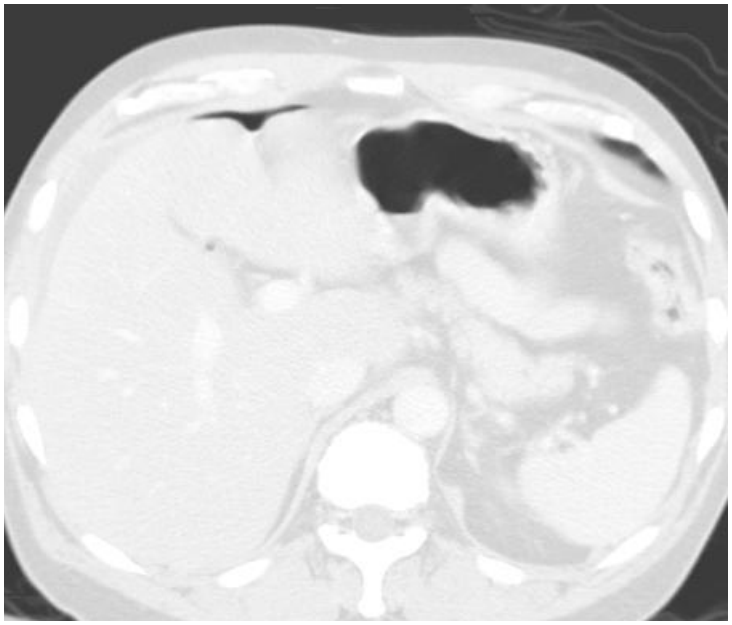


Ligament falciforme

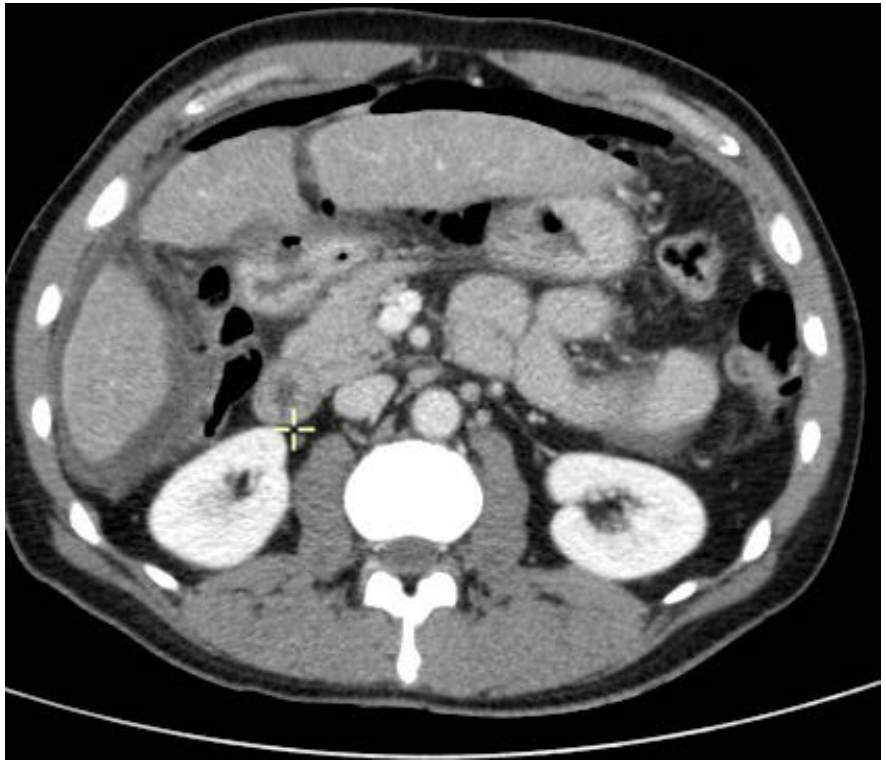
Site & Cause de la perforation: CT

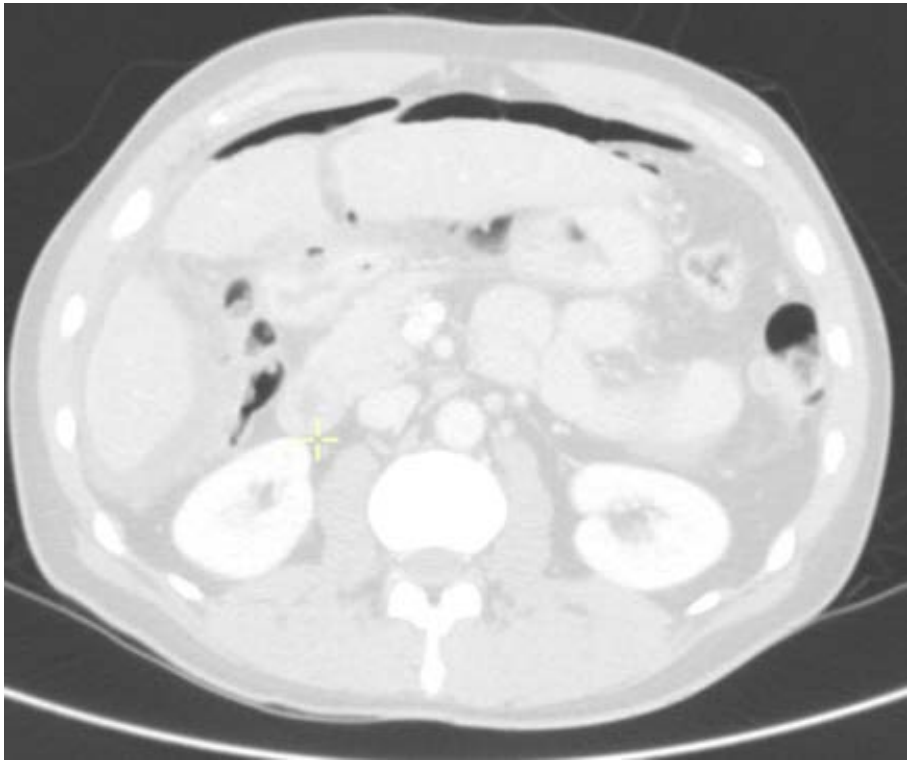
- CT et perforation gastro-duodénale:
  - Liquide localisé entre le duodénum et la tête du Pancréas
  - Paroi épaissie à > 12 mm
  - Interruption focale de la paroi (si IV)
  - Infiltration de la graisse de voisinage
  - Air libre
    - dans la scissure hépatique
    - Dans l'ACE
  - Si post-endoscopie haute
    - Rétropneumopéritoine périduodénal





Site de perforation

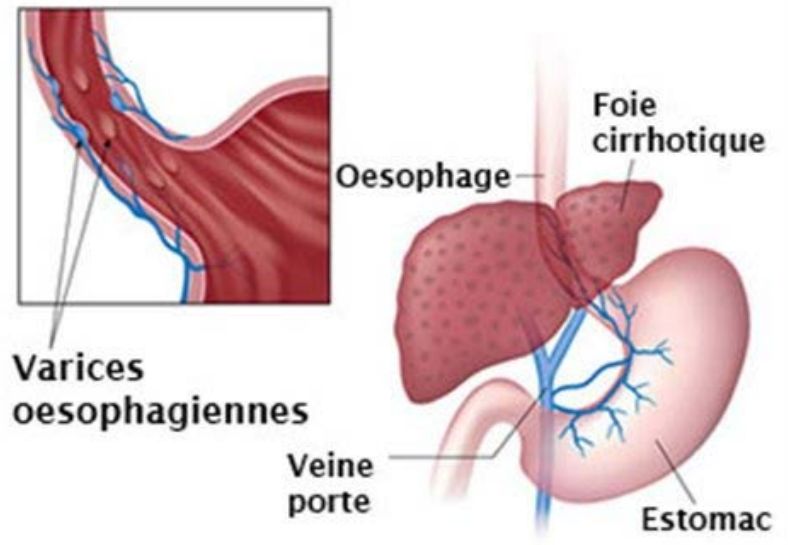




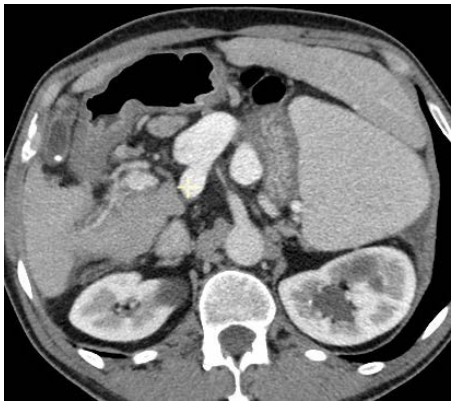
Estomac, Inflammation et Imagerie

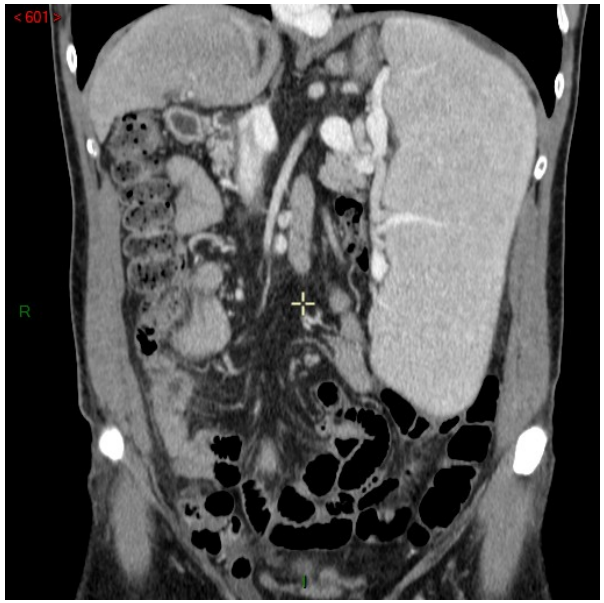
- Gastrites, Ulcères : endoscopie
- Perforation: Imagerie
- Hémorragies :
  - Endoscopie
  - RX interventionnelle
  - CT post procédure

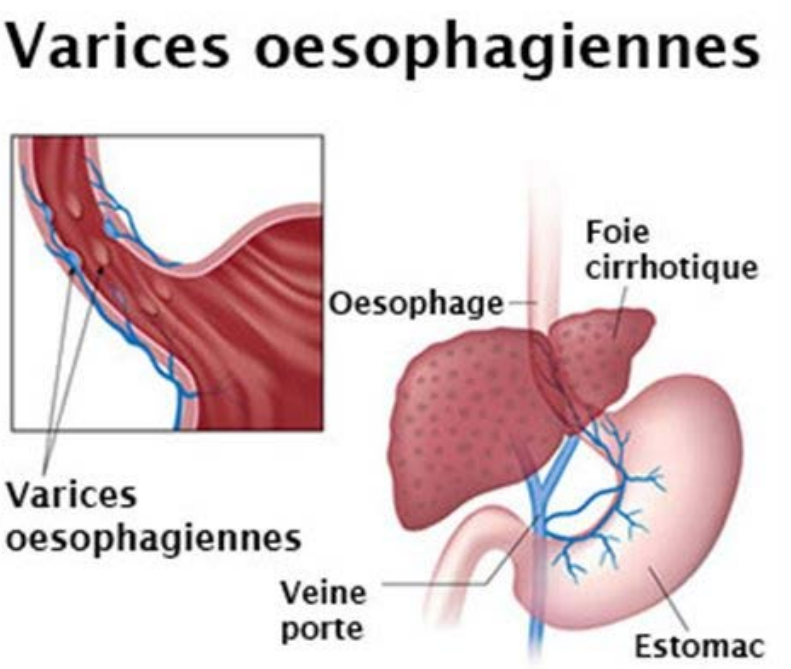
Varices oesophagiennes



http://www.docteurclic.com/galerie-photos/image_5260_400.jpg



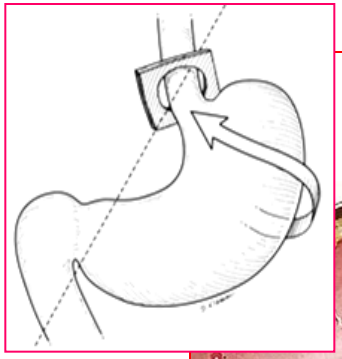


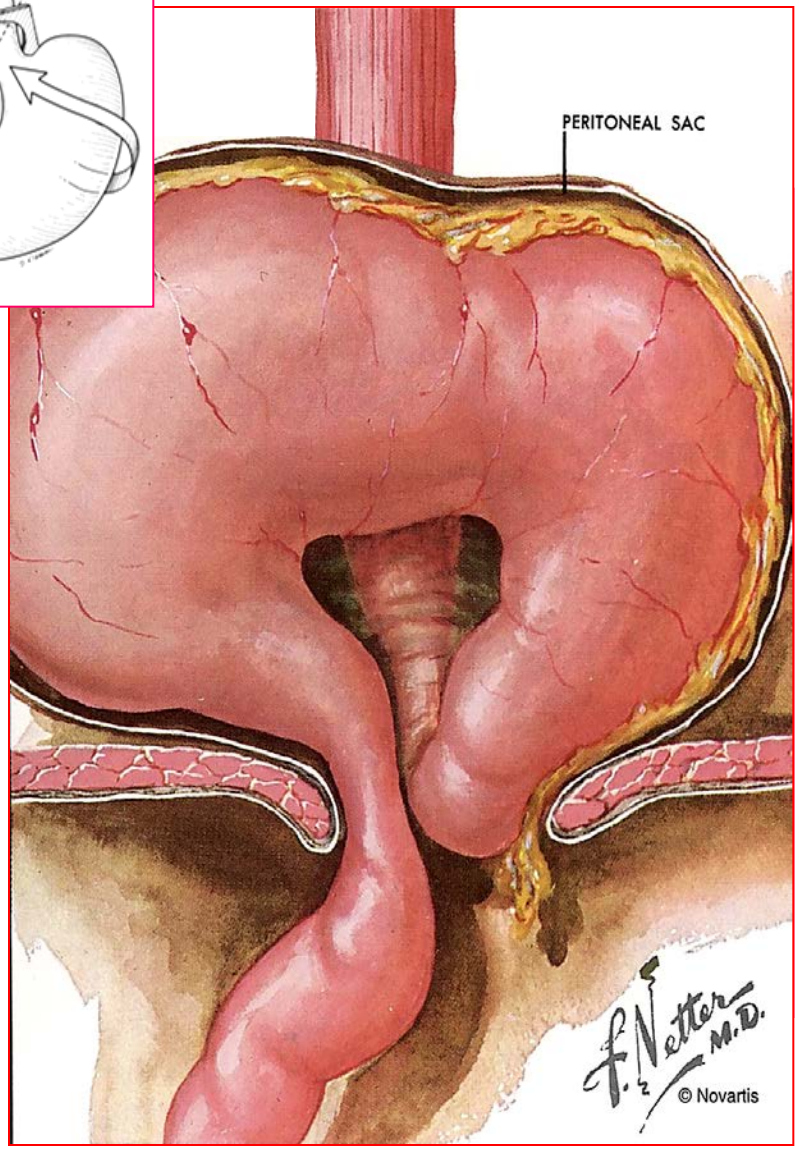


http://www.docteurclic.com/galerie-photos/image_5260_400.jpg

Estomac, Inflammation et Imagerie

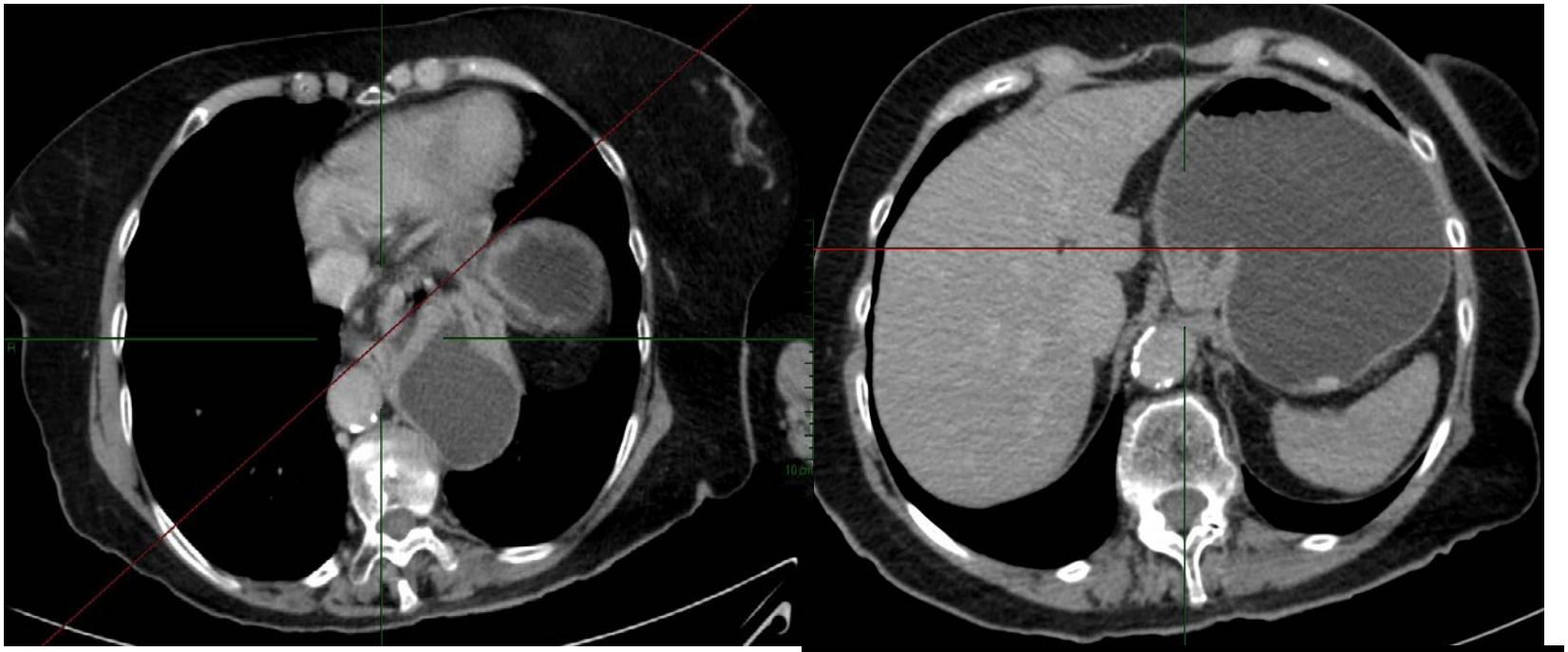
- Gastrites, Ulcères : endoscopie
- Perforation: Imagerie
- Hémorragies : endoscopie et RX Interv
- Occlusion: Imagerie

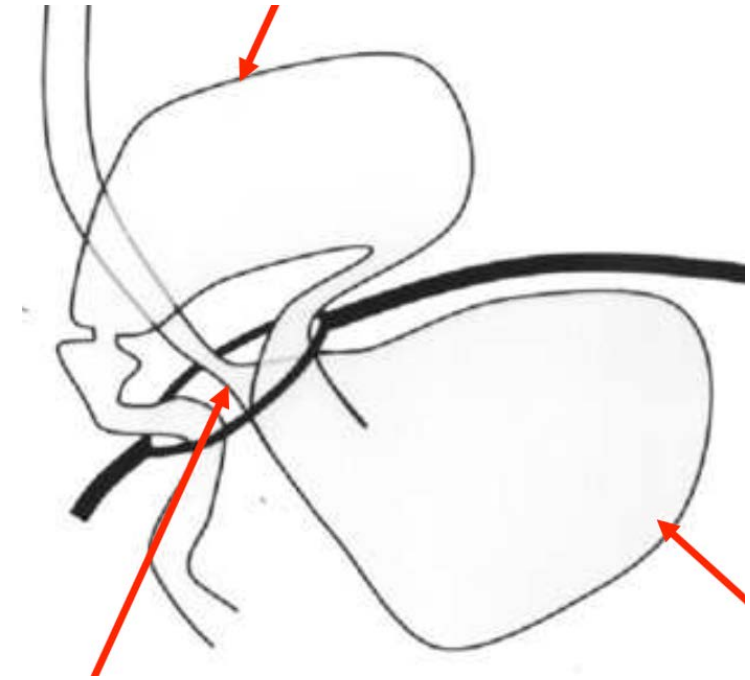




hernie hiatale et volvulus gastrique (organo-axial)
estomac intrathoracique "en miroir"

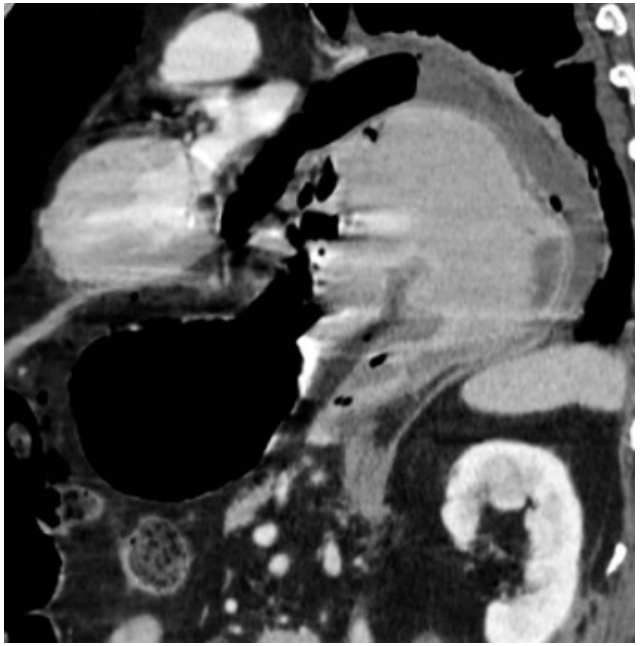
In Netter, Atlas d’anatomie humaine, Masson, 2007

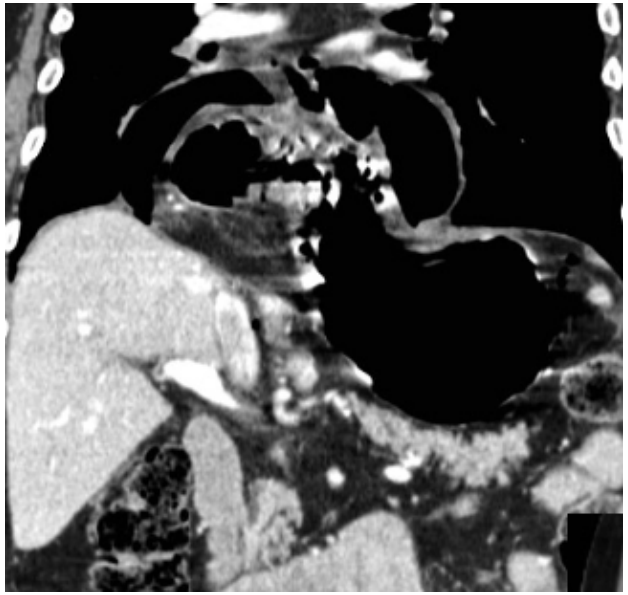


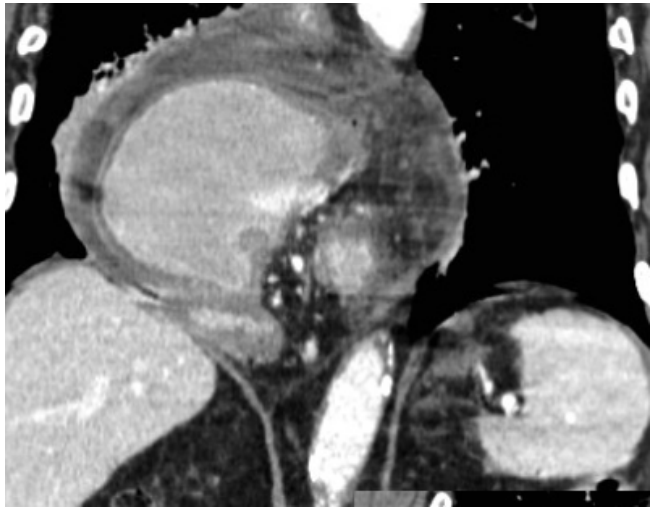


Complications du volvulus

1.Ischémie par strangulation vasculaire
2.Nécrose transmurale
3.Perforation





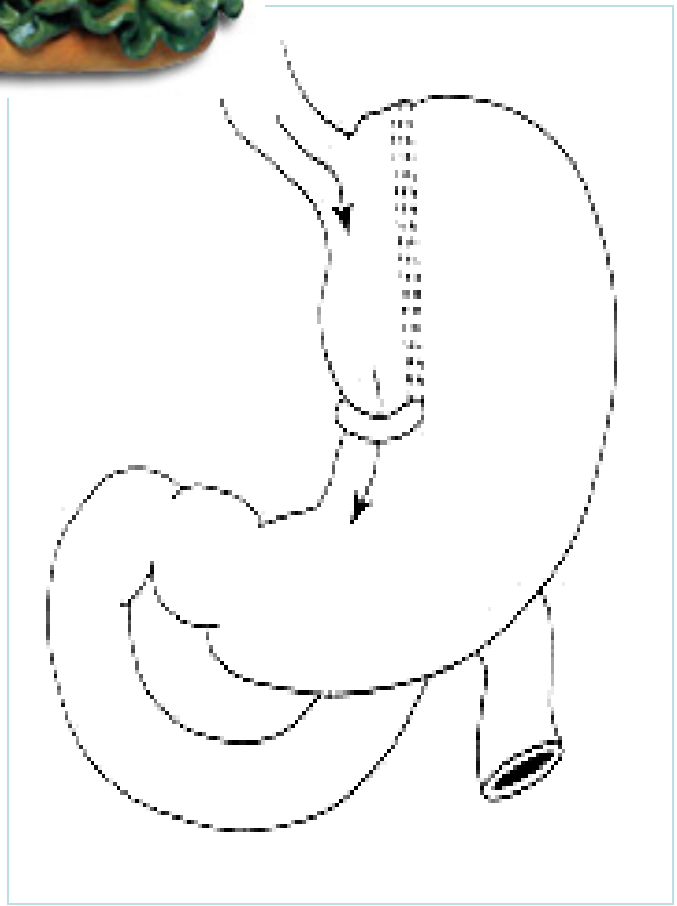


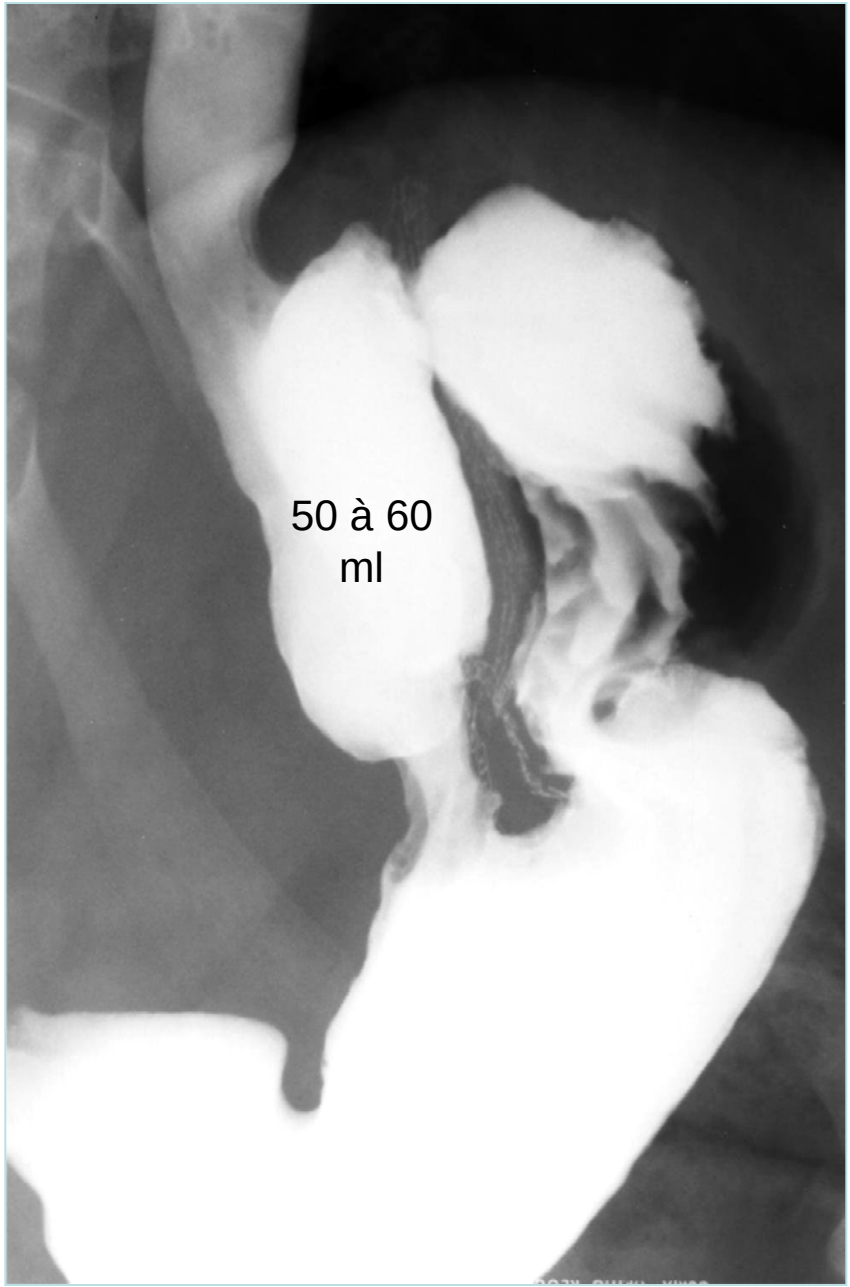
Nécrose gastrique avec perforation sur volvulus mésentérico-axial

Radiologie et Estomac

- Chirurgie de l’obésité = Chirurgie Bariatrique

chirurgie bariatrique

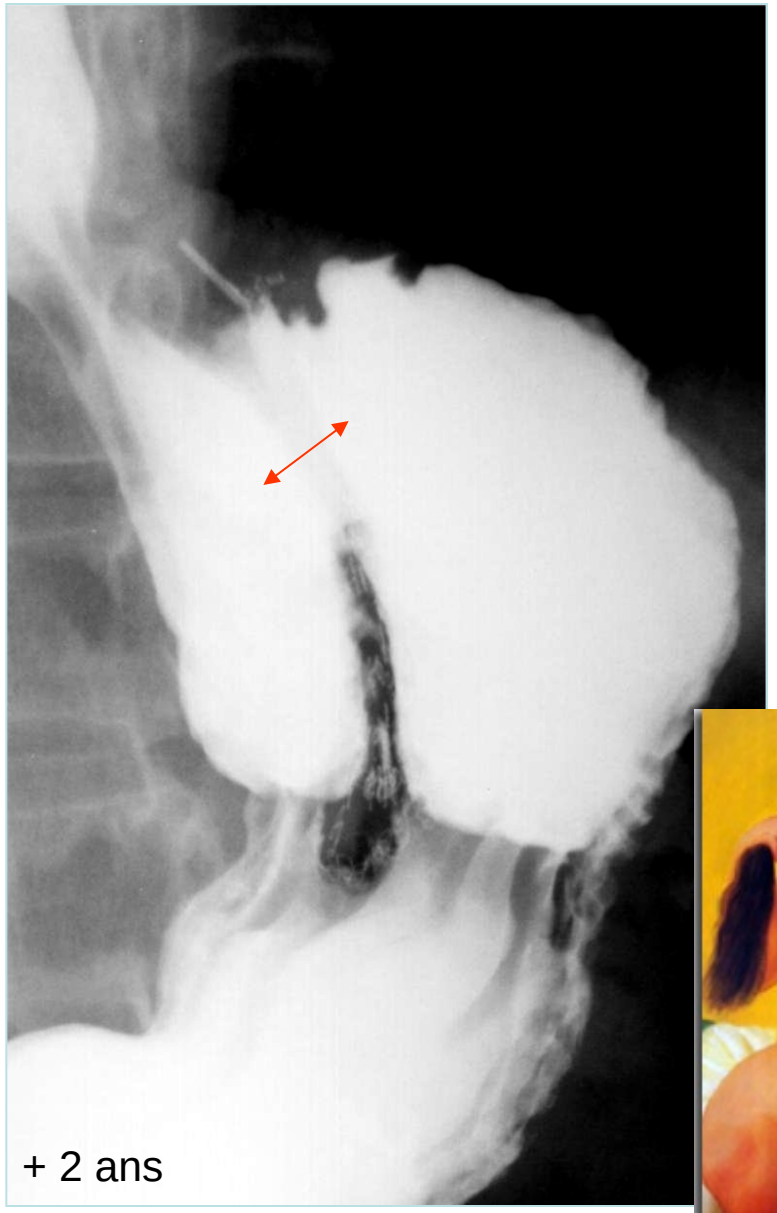




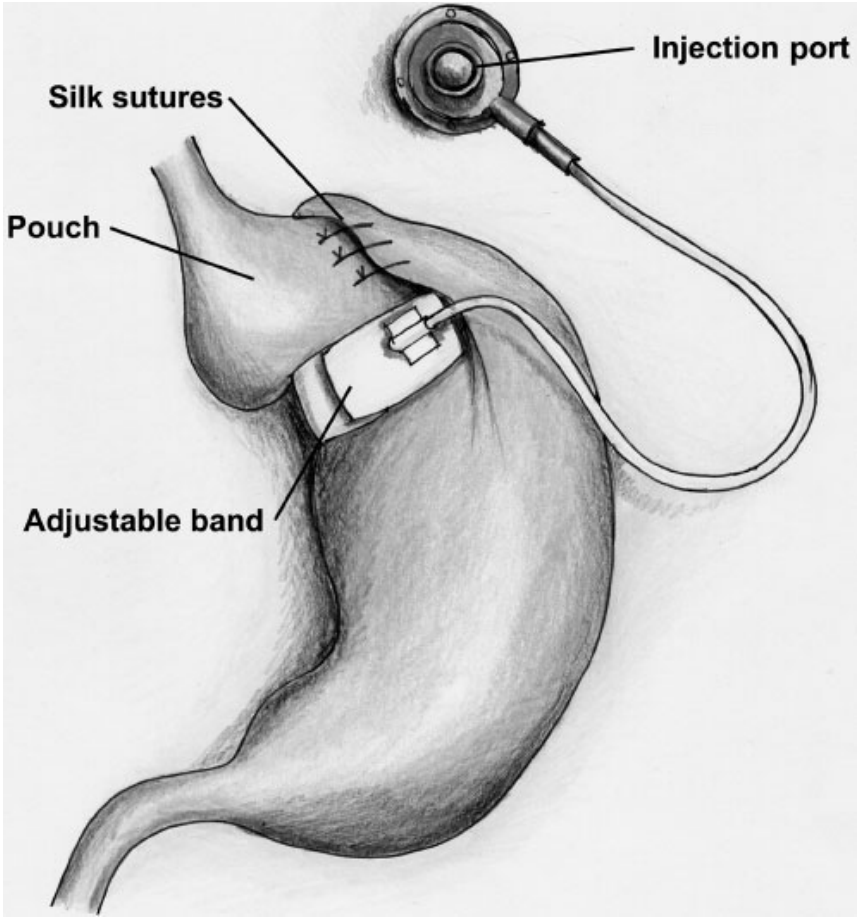
gastroplastie verticale de Mason

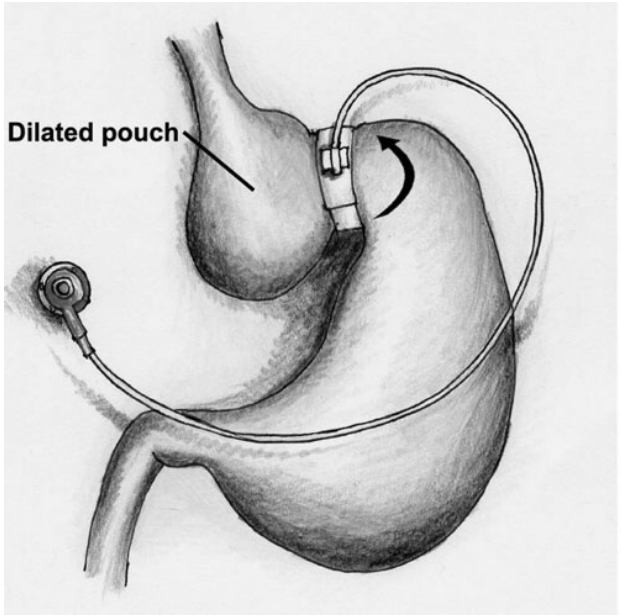
gastroplastie verticale de Mason

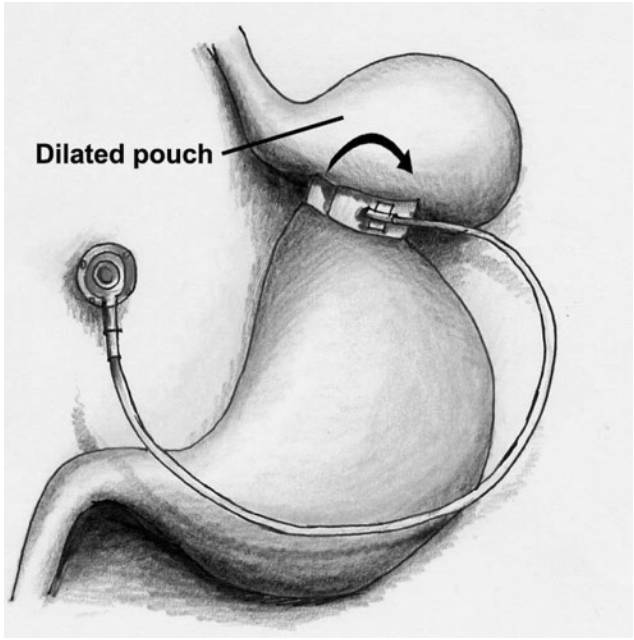
➔



complication : déhiscence partielle de la suture







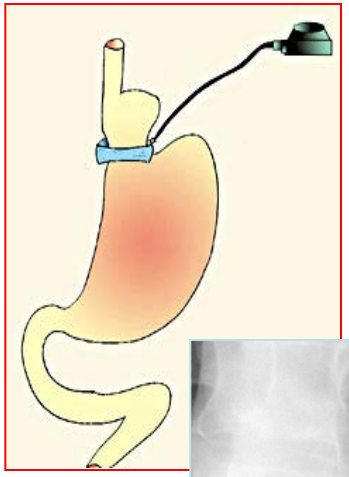
The British Journal of Radiology, 81 (2008), 753–757

PICTORIAL REVIEW

Radiographical imaging of the normal anatomy and complications after gastric banding

[1]H PROSCH, MD, [1]R TSCHERNEY, MD, [2]S KRIWANEK, MD and [1]D TSCHOLAKOFF, MD

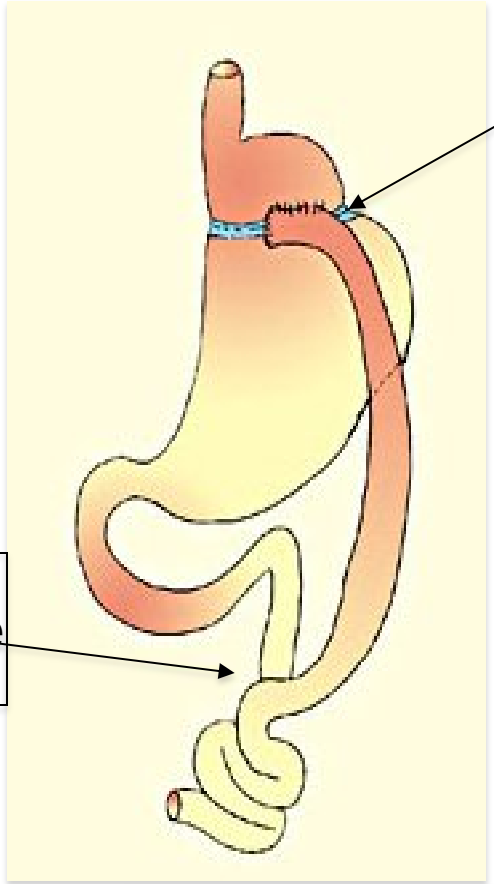
chirurgie
bariatrique



complication :
sténose

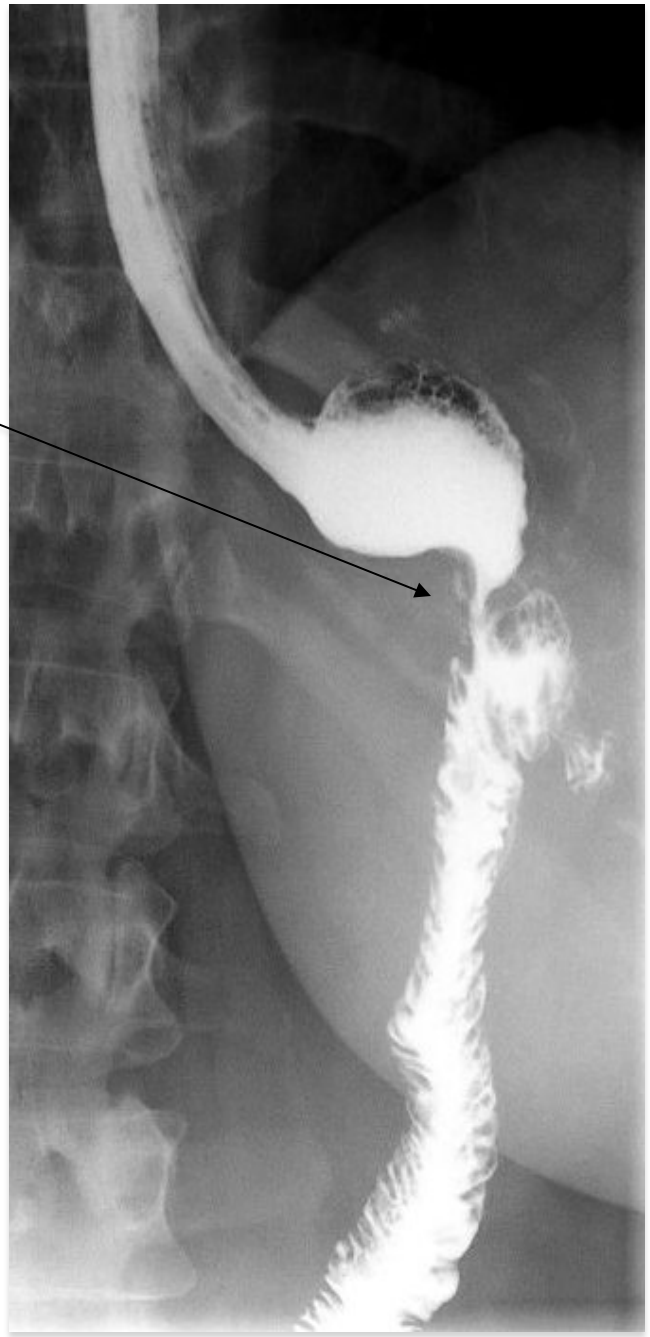
gastroplastie par anneau ajustable
"gastric banding"

chirurgie bariatrique



anastomose gastro-jéjunale

anastomose jéjuno-jéjunale



bypass gastrique

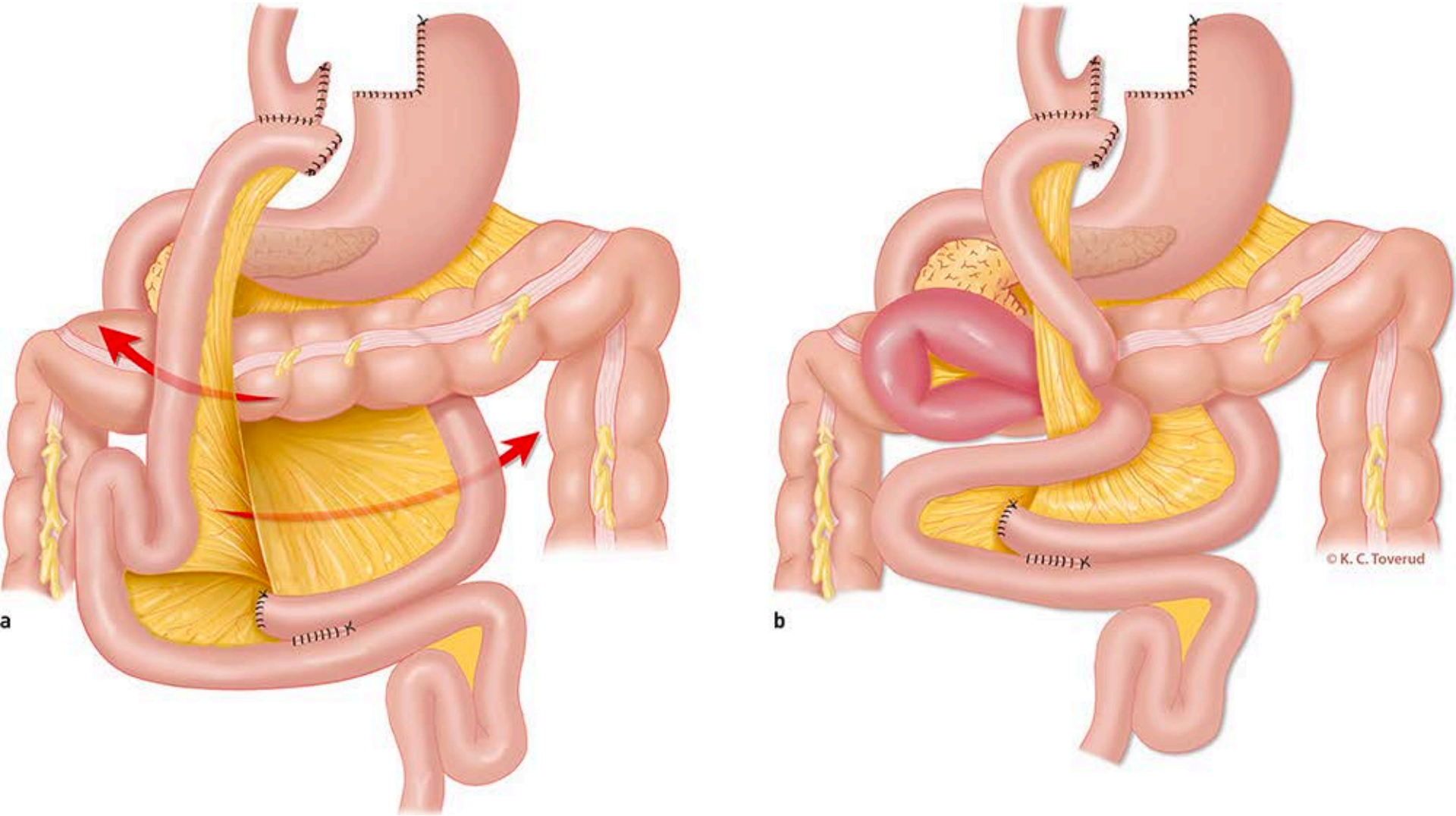
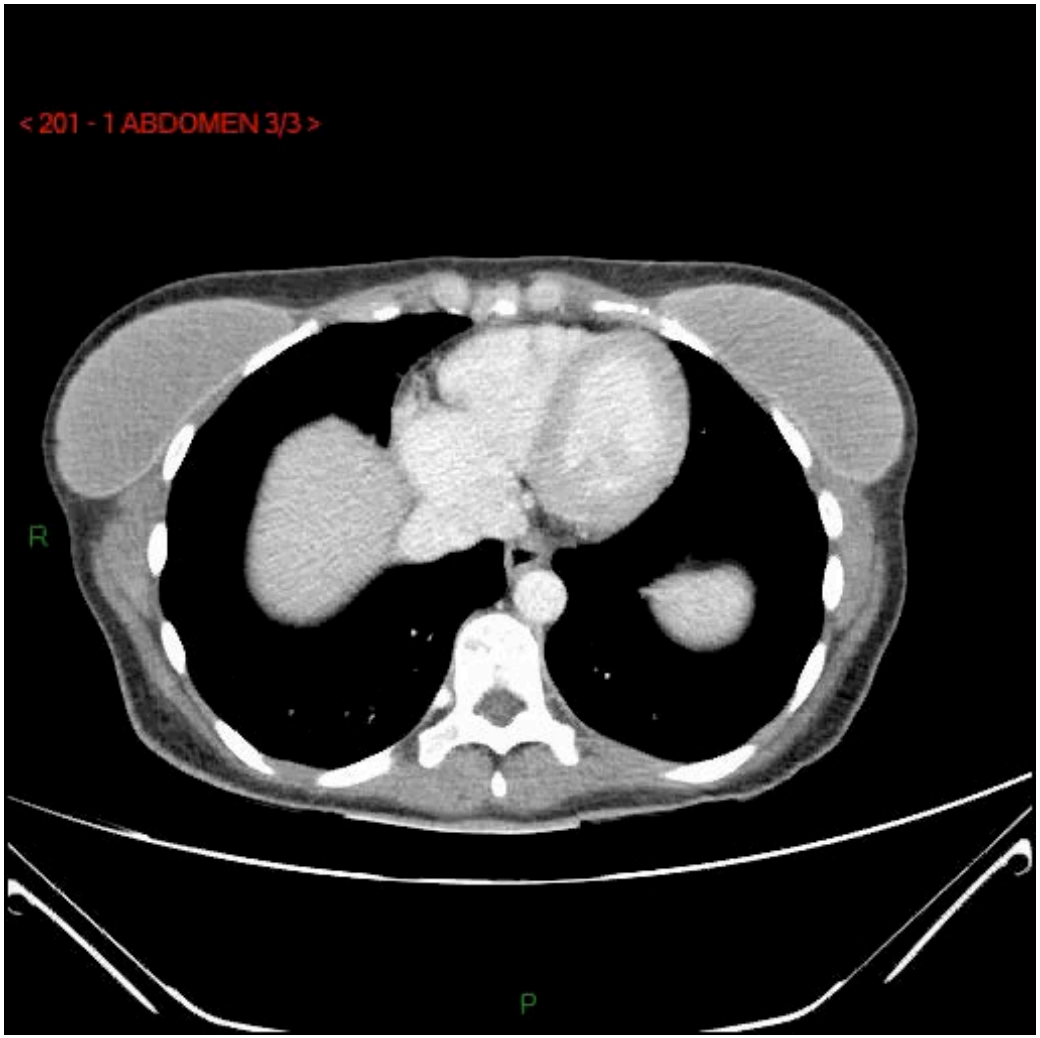

a
b
© K. C. Toverud

Figure 7 Hernie par le trou de Petersen

https://www.google.be/search?q=hernie+de+petersen&espv=2&biw=1280&bih=699&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiO6trQ2qbSAhWDOsAKHcFICVwQ_AUIBigB#imgrc=Sjt1caZdDvWW4M:



Estomac et tumeurs

- Adénocarcinome
- Linite
- GIST
- Autres

Estomac

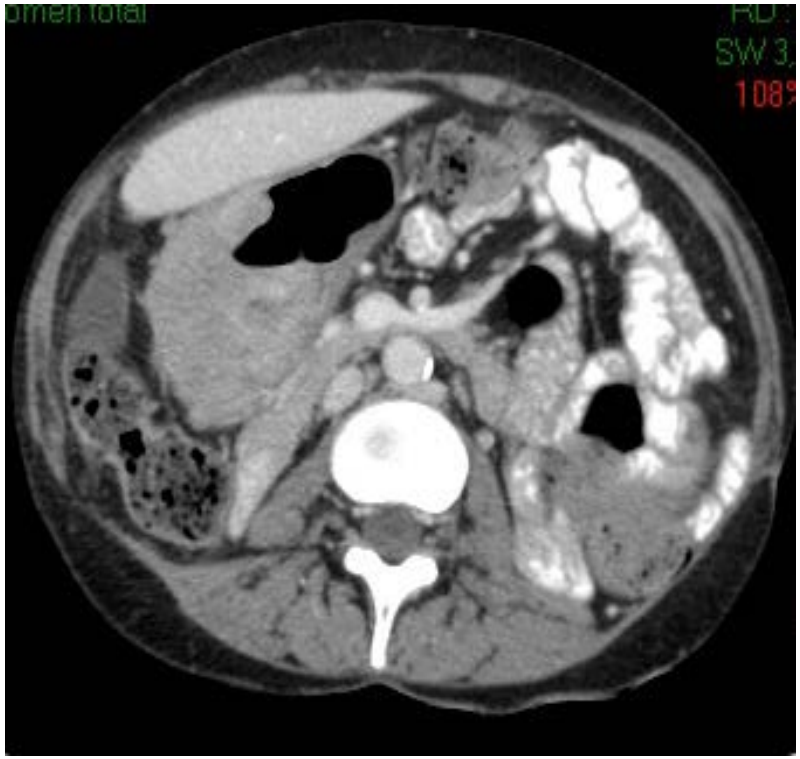
	US endo	RX	CT	Pet CT
Détection	endoscopie			
Stadification	+		+	+
Suivi	+		+	+

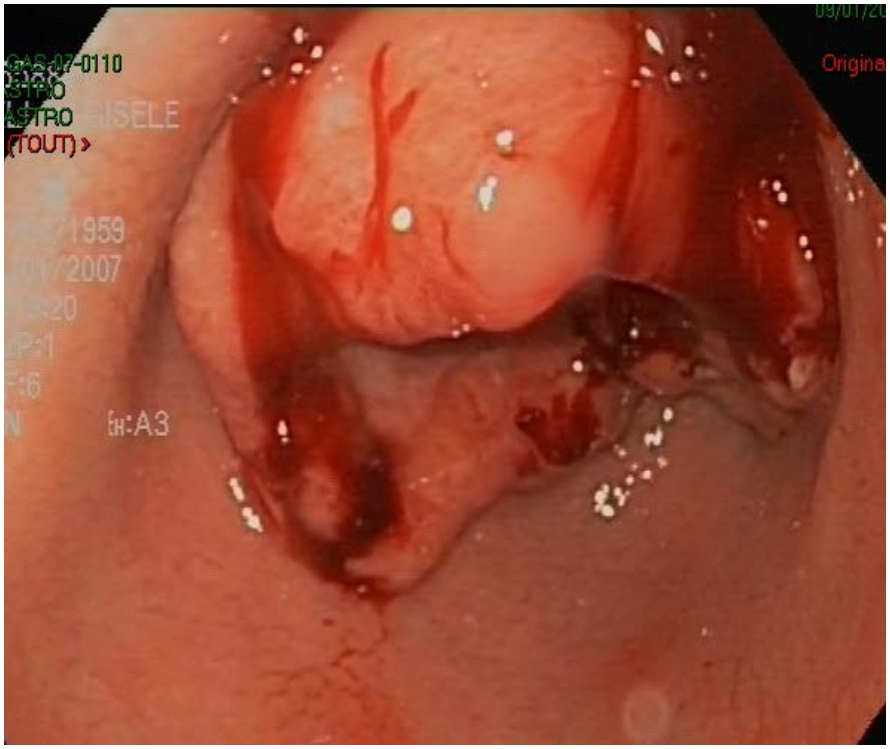
Tumeurs primitives :

- Carcinomes :75 %
  - Linite : K peu différencié, ou métastase K sein ou Lymphome (7 à15 %)
- Lymphomes : 20 %
- GIST: localisation gastrique préférentielle: 1 à 2 %

Métastases:

- Sein
- Poumon
- Ovaire
- mélanome



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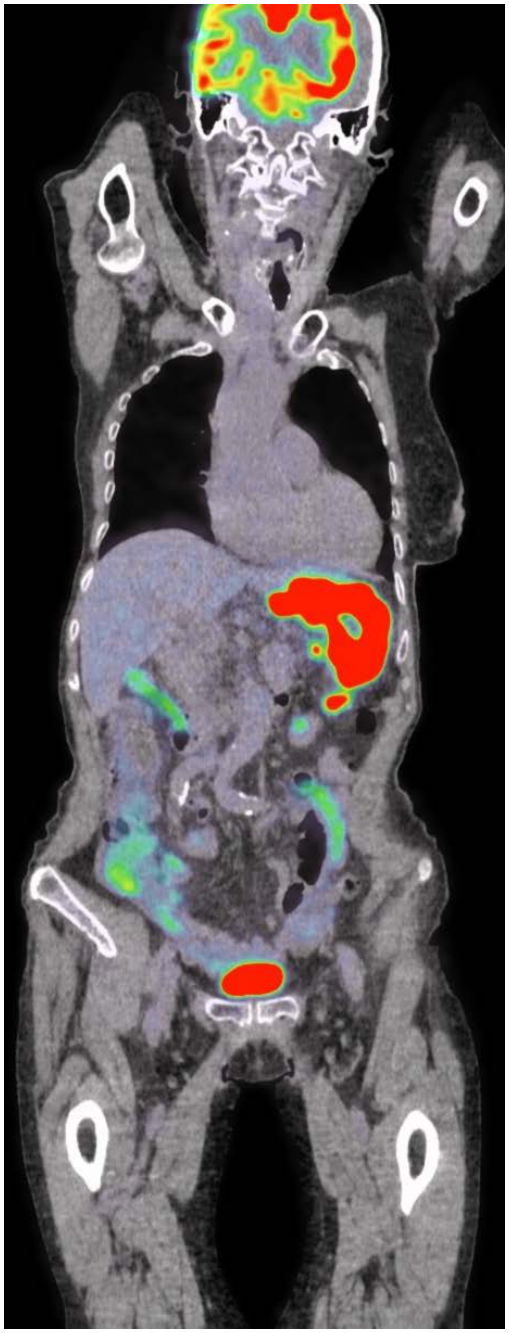
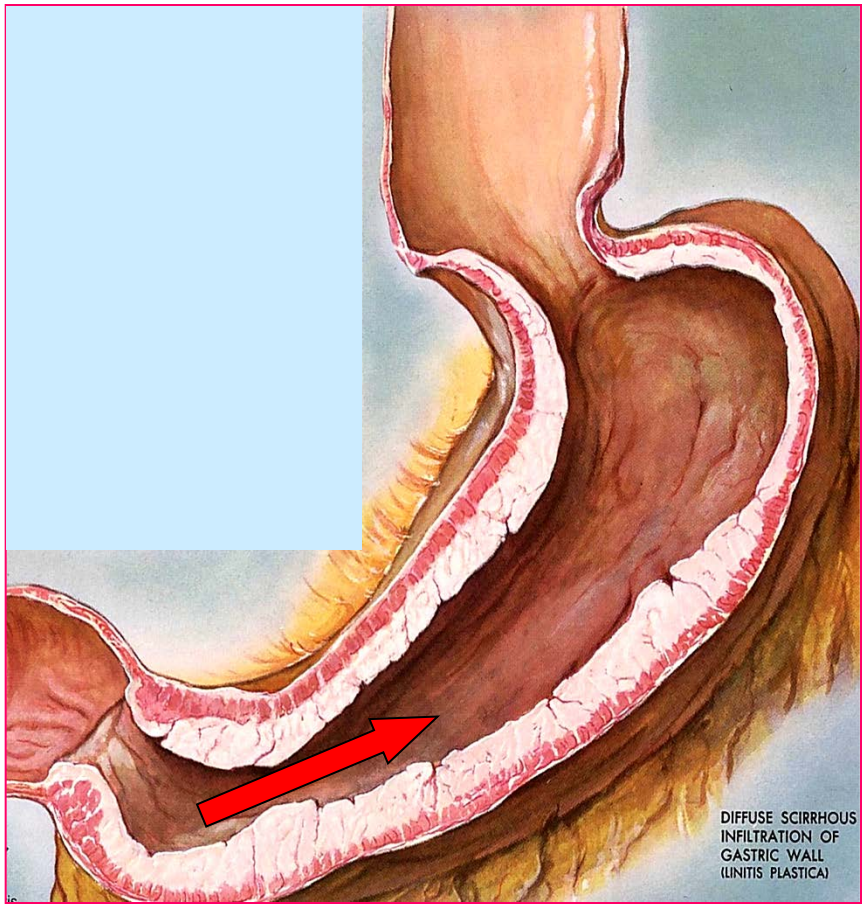
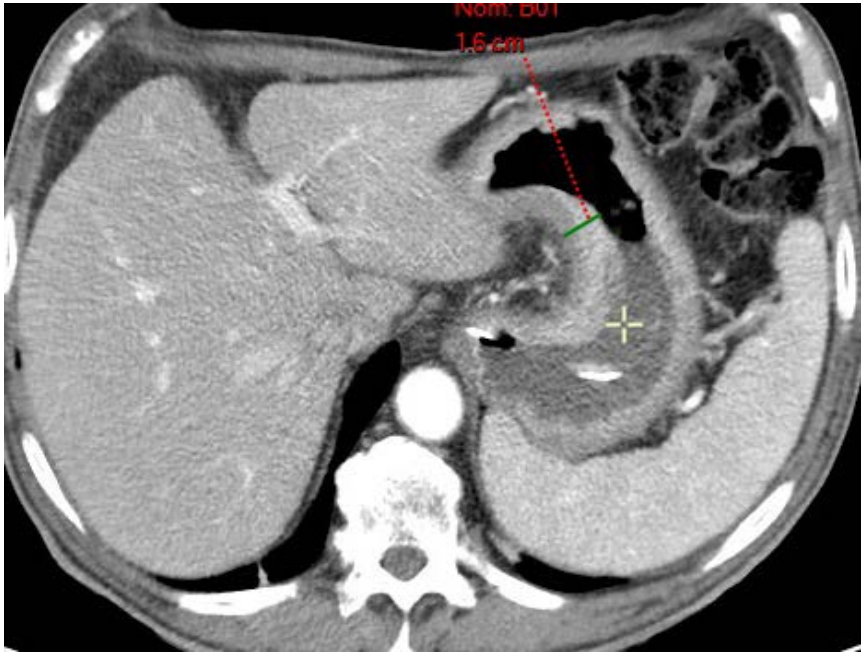
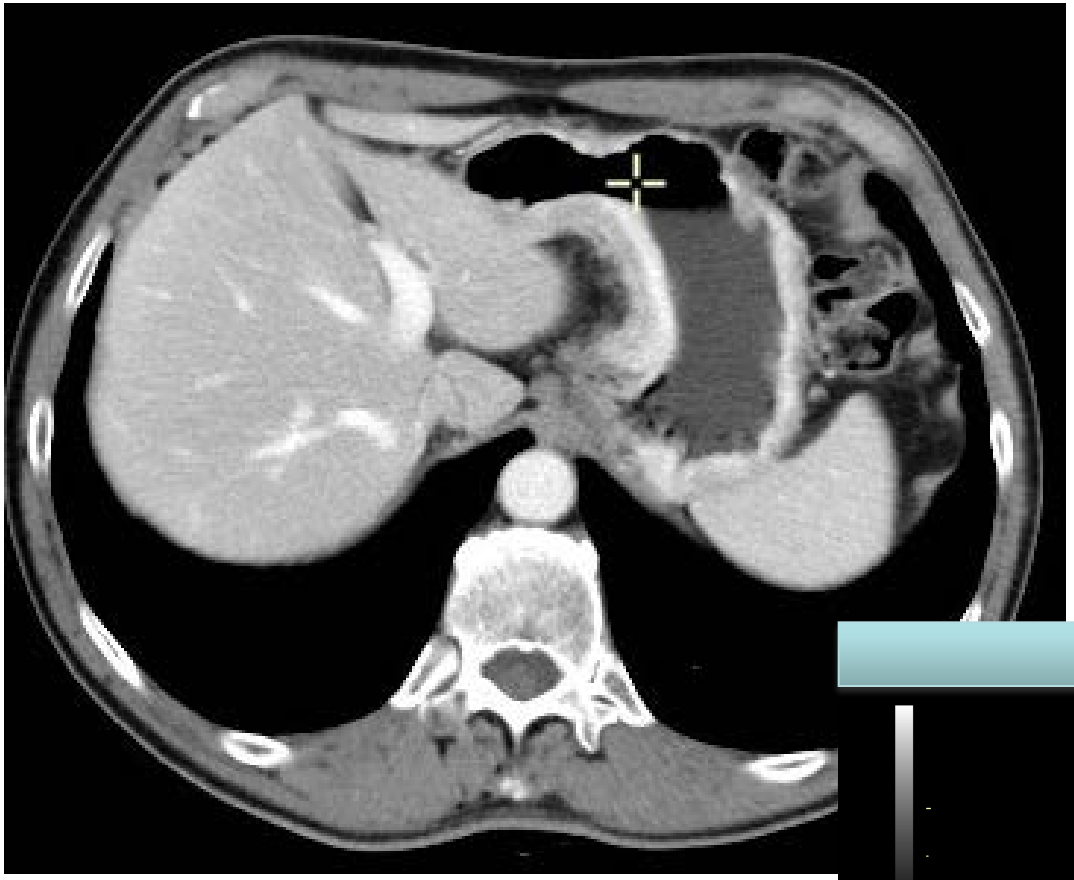






In Netter, Atlas d'anatomie humaine, Masson, 2007

cancer infiltrant (linite plastique)

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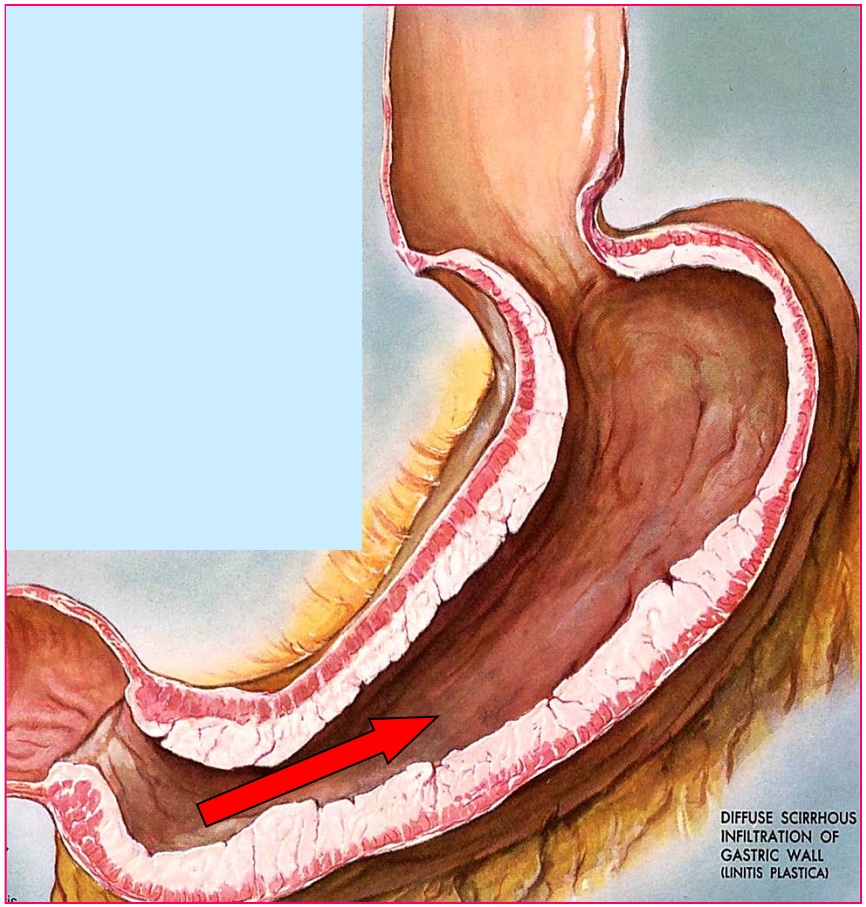
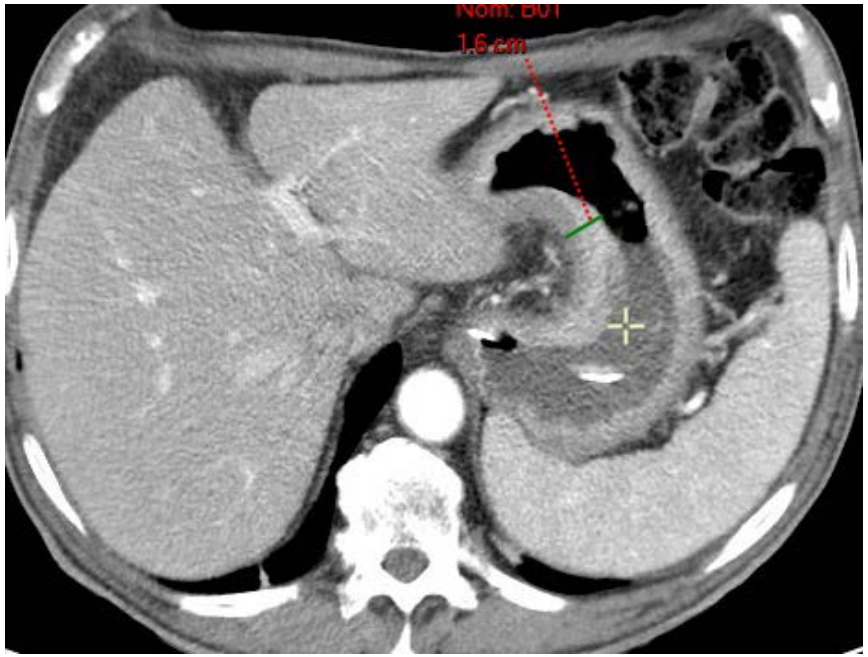
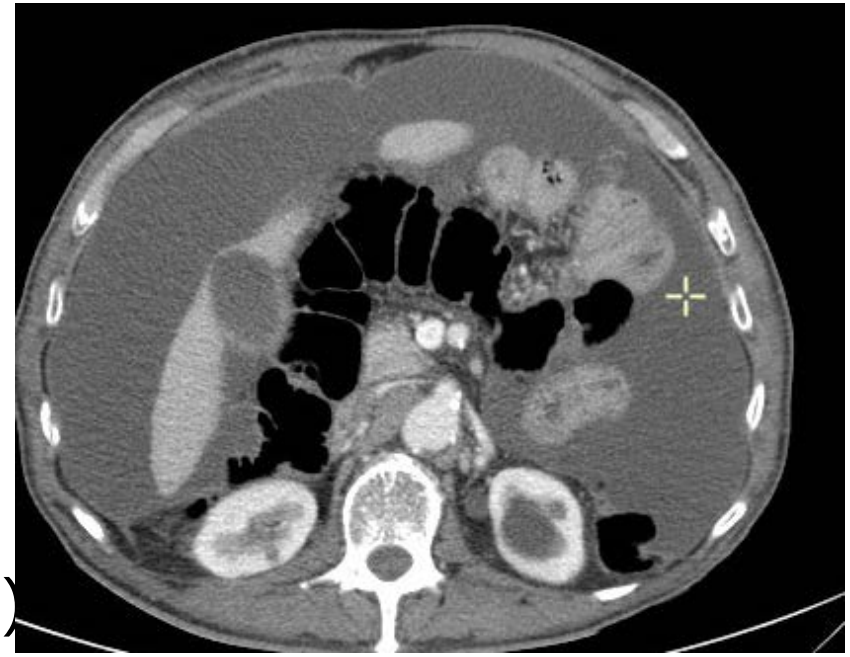
Gn 2
C6 / M8
P4 / E2
MI 1.0
TIS 0.5
Geler



In Netter, Atlas d'anatomie humaine, Masson, 2007

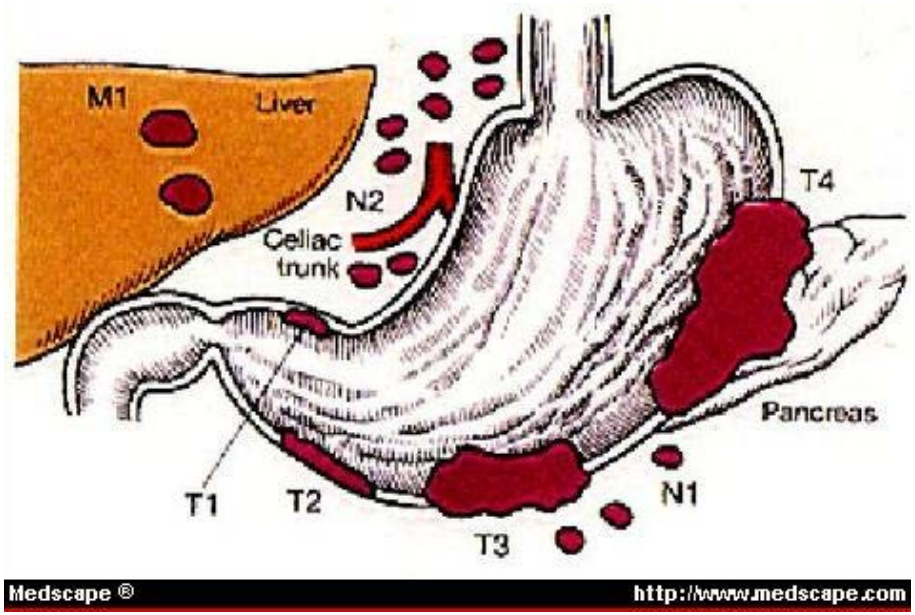




cancer infiltrant (linite plastique)

Néoplasie gastrique et extension

- N: ganglions régionaux



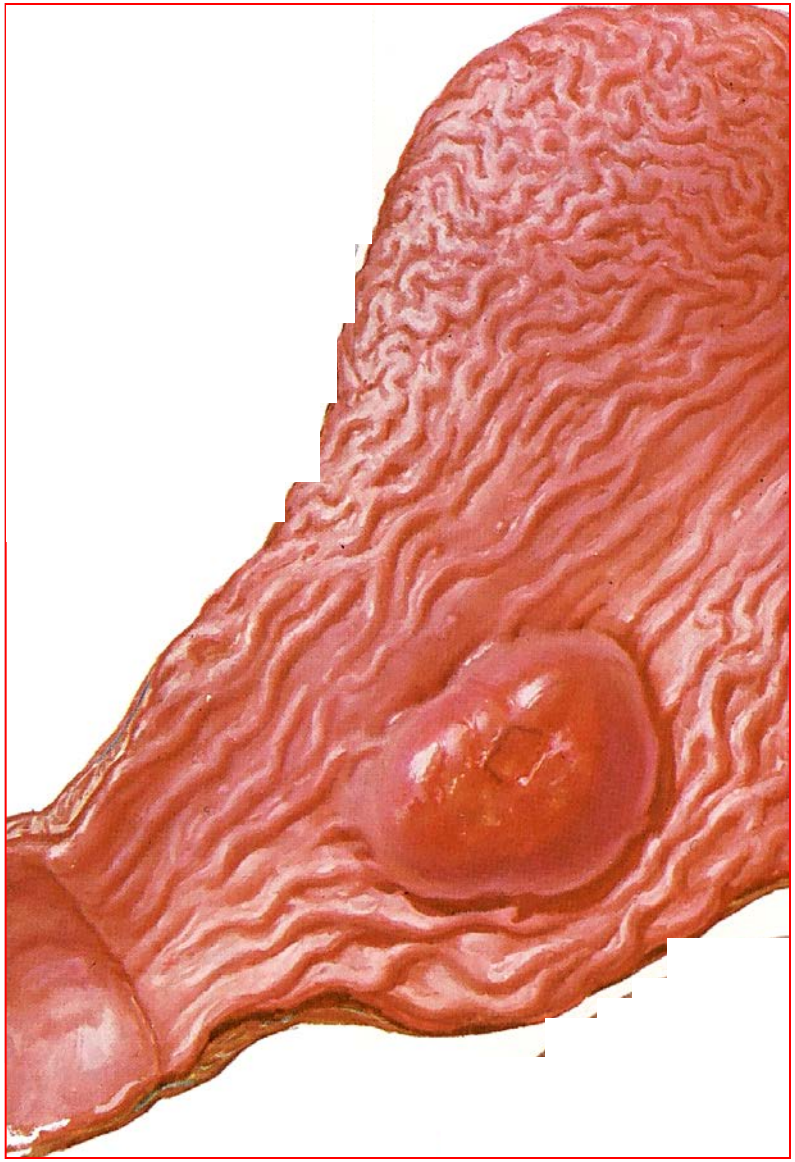
Néoplasie gastrique et extension

- N: ganglions régionaux

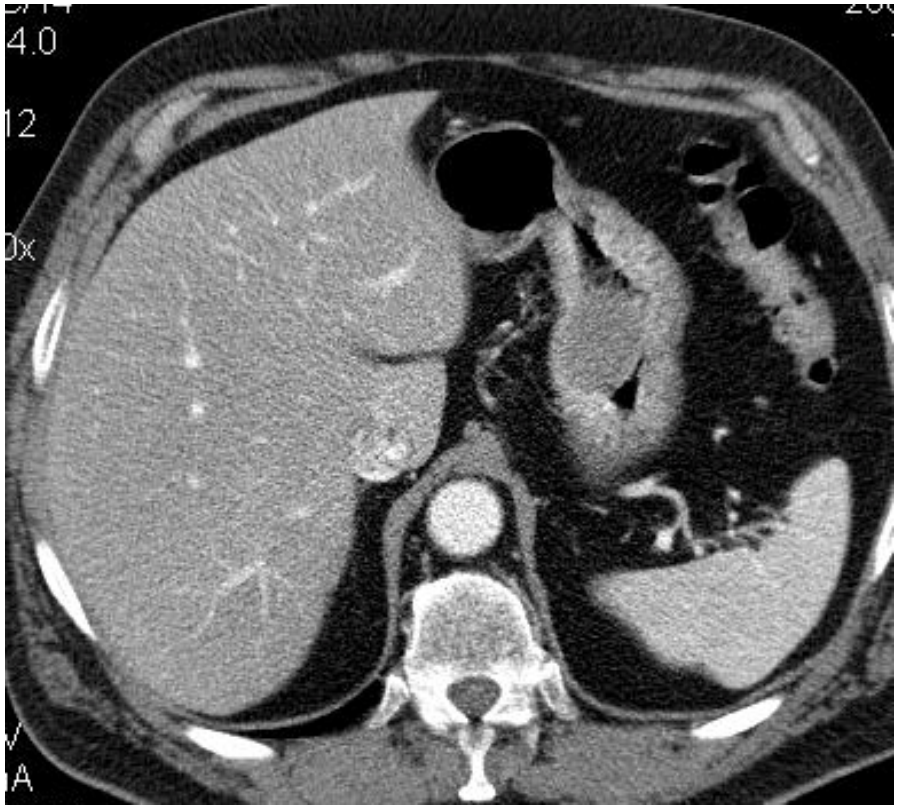
- Extension Péritonéale :
  - Péritoine
  - Ovaires: tumeur de Krukenberg

GIST

- = « gastrointestinal stromal tumors »
- = ensemble des tumeurs conjonctives du tube digestif, à cellules fusiformes et exprimant le CD 117 (« protein C kit »)
  - GIST à différenciation cellulaire musculaire lisse (léiomyome)
  - GIST à différenciation cellulaire nerveuse (plexosarcome)
  - GIST à différenciation nerveuse
  - GIST mixtes
  - GIST indifférenciés
- > cellules de Cajal
- Peuvent se développer dans un contexte particulier
  - Neurofibromatose de type 1 (NF1)
    - GIST avec prédilection grêle, lésions de petite taille (< 2 cm), inactivité mitotique, pas de signes cliniques
  - Triade de Carney:
    - GIST gastrique, paragangliome, chondrome pulmonaire



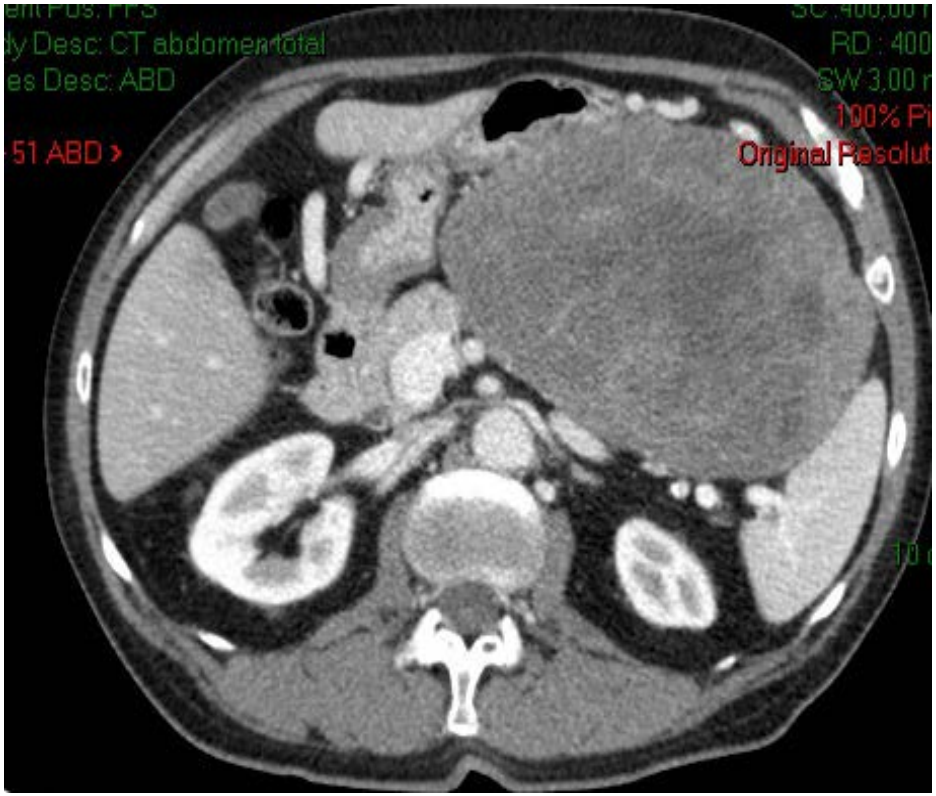
In Netter, Atlas d'anatomie humaine, Masson, 2007



tumeur sous-muqueuse

contour lisse
angles de raccord droits ou (obtus)

léiomyome


y Desc: CT abdomen total
es Desc: ABD
51 ABD ›
Original Resolut


Original
ASE examination running

GIST

	US endo	RX	CT	Pet CT
Détection	Endoscopie		+	
Stadification	+		+	+
Suivi	+	+	+	+

Estomac site le plus fréquent
- les lésions peuvent s'ulcérer et saigner, ou se nécroser et présenter une cavité centrale dans le suivi de la nécrose.

Critère de malignité : > 5 cm
Diagnostic initial
- de la lésion
- des localisations secondaires
Suivi
- De la lésion
- des localisations secondaires
    - critères de Choi

Table 2 **Response criteria and modified CT criteria according to RECIST and Choi**

Response	RECIST 1.1	Choi
PD	Increase of at least 20% and 5 mm in SLD New lesion(s) Unequivocal progression of non-target lesion(s)	Increase of at least 10% in SLD and decrease of less than 15% in MLD[a] New lesion(s) New or increasing nodule(s) within a mass
SD	Decrease of less than 30% and increase of less than 20% in SLD	Decrease of less than 10% and increase of less than 10% in SLD and decrease of less than 15% in MLD[a]
PR	Decrease of at least 30% in SLD	Decrease of at least 10% in SLD and decrease of at least 15% in MLD[a]
CR	Complete remission	Complete remission

PD, progressive disease; SD, stable disease; PR, partial complete response; CR, complete response; SLD, sum of the longest diameter according to RECIST[9]; MLD, mean lesion density according to modified CT criteria[11].

[a]Complementary recommendation of the German GIST Working Group: density changes should account for at least 10 HU.