

Tumeurs du tube digestif et imagerie

DES 2018

E DANSE

Table des matières

- Rôle du radiologue
- Sites
 - Œsophage
 - Estomac
 - GIST
 - Colon et rectum
 - Canal Anal
 - T Carcinoïdes

Rôle du radiologue en cancérologie du tube digestif

- Détection
- Stadification: TNM
- Suivi

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

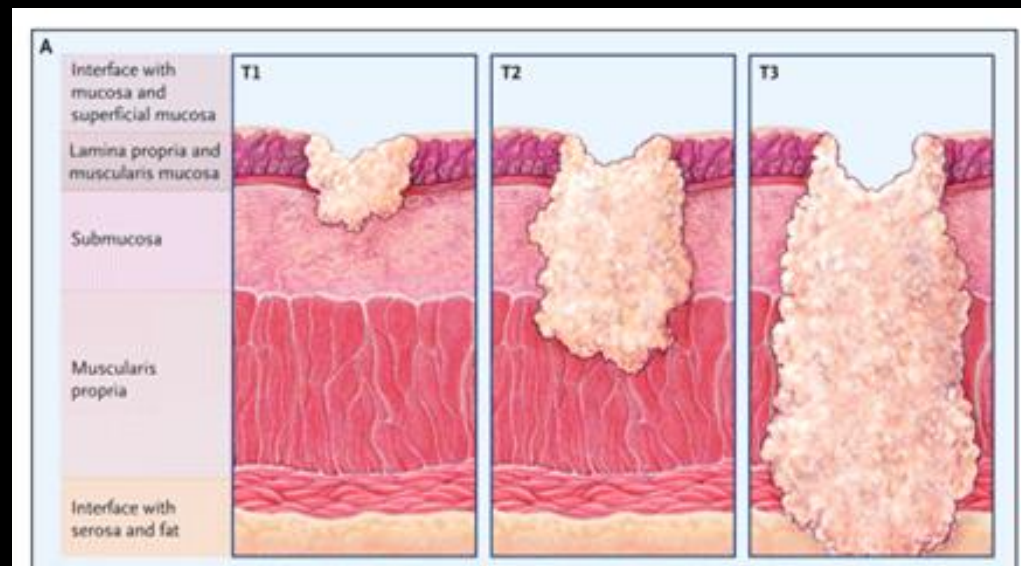
Distant metastases (M)

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

Table 1. The upper limit of normal of nodal size according to anatomical regions in the abdomen and pelvis

Site	Nodal size (mm) ^a
Retrocrural	6
Paracardiac	12
Gastrohepatic	8
Porta hepatis	7
Portacaval	10 (13 ^b)
Upper paraortic	9
Lower paraortic	11
Mesenteric	5
Pelvic	10
Inguinal	15

Cross-sectional imaging of nodal metastases in the abdomen and pelvis

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SHORT AXIS

Lymph Node Size on Computed Tomography Images Is a Predictive Indicator for Lymph Node Metastasis in Patients with Colorectal Neuroendocrine Tumors

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Table III. Findings on the CT image and LN metastasis in the intermediate LNs.

Findings on CT	Pathologically-proven LN metastasis		
	LN positive cases (n=4)	LN negative cases (n=17)	
LN visible cases (Positive/Negative)	4/0	4/13	<i>p</i> =0.012
No. of LN per case	1.5±0.34	0.29±0.16	<i>p</i> =0.0022
*Maximum Diameter of LNs	4.3±0.89	0.93±0.43	<i>p</i> =0.0017
*Shape (Round/Ellipse)	3/1	3/1	n.s.
*Margin (Regular/Irregular)	3/1	4/0	n.s.
*Internal pattern (iso/hetero)	4/0	4/0	n.s.

*Parameters were evaluated in the cases in which the LNs were visible on the CT image. LN, lymph node; n.s., not significant.

RESEARCH ARTICLE

Open Access



Assessment and diagnostic accuracy of lymph node status to predict stage III colon cancer using computed tomography

Erik Rollvén^{1*}, Mirna Abraham-Nordling², Torbjörn Holm² and Lennart Blomqvist¹

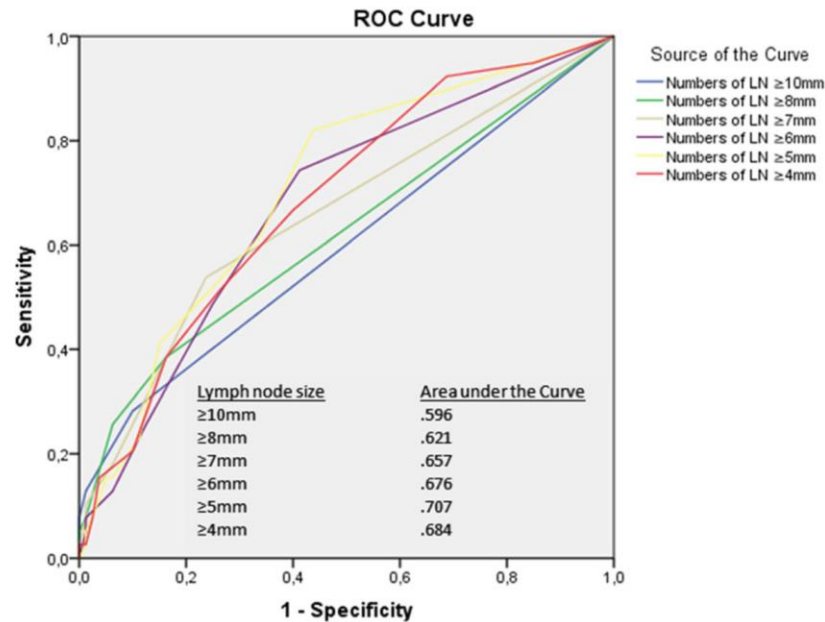
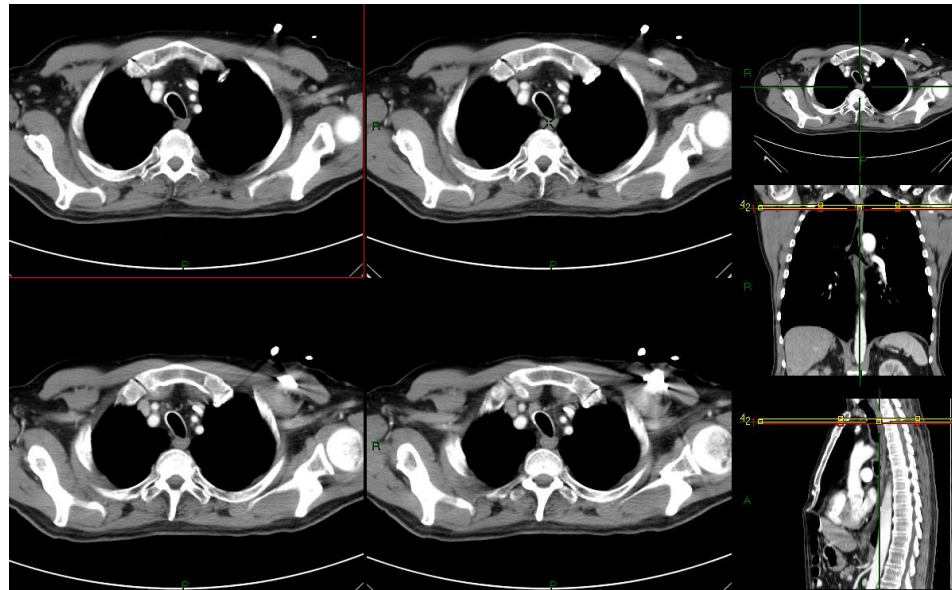


Fig. 4 Size criteria ($\geq 4, 5, 6, 7, 8, 10$ mm) in shortest diameter according to CT presented as receiver operating characteristics, ROC, and Area under the curve, AUC

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



Multimodality Assessment of Esophageal Cancer: Preoperative Staging and Monitoring of Response to Therapy¹

Tae Jung Kim, MD •
 Hyae Young Kim, MD •
 Kyung Won Lee, MD •
 Moon Soo Kim, MD

RadioGraphics 2009;
 29:403–421

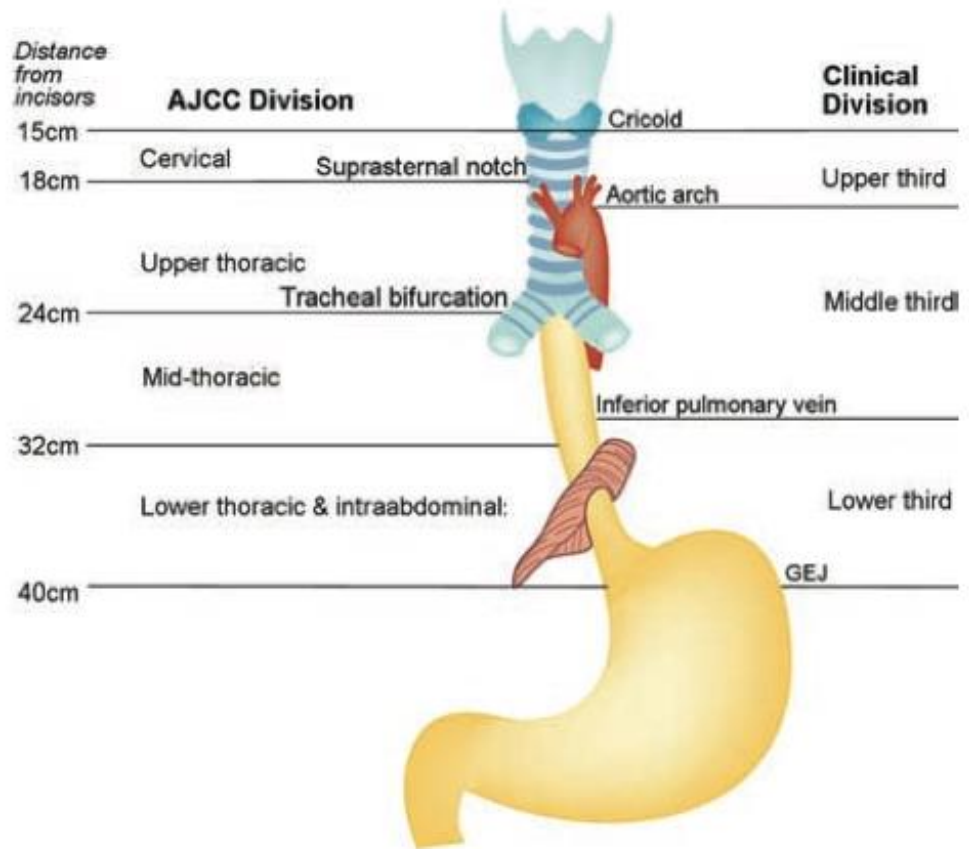
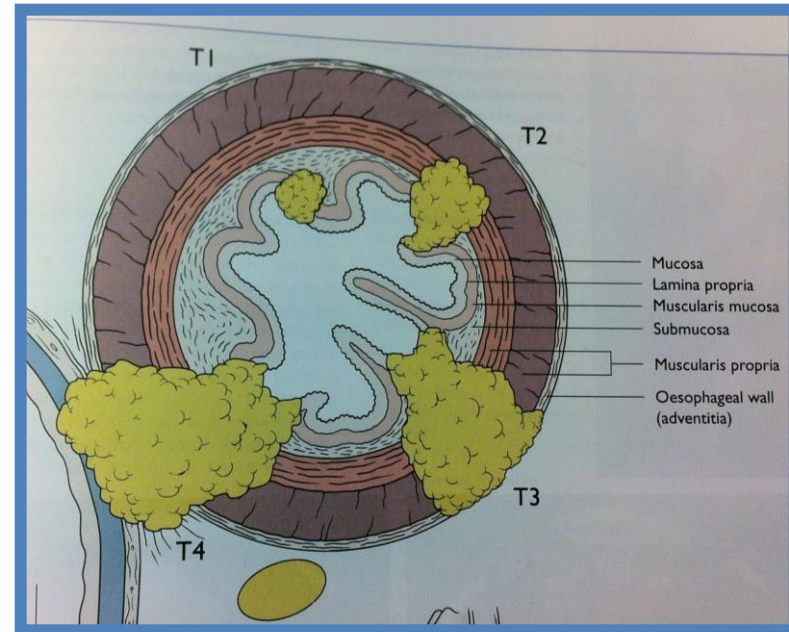


Figure 1. Drawing illustrates the AJCC divisions (left) and clinical divisions (right) of the esophagus. *GEJ* = gastroesophageal junction.

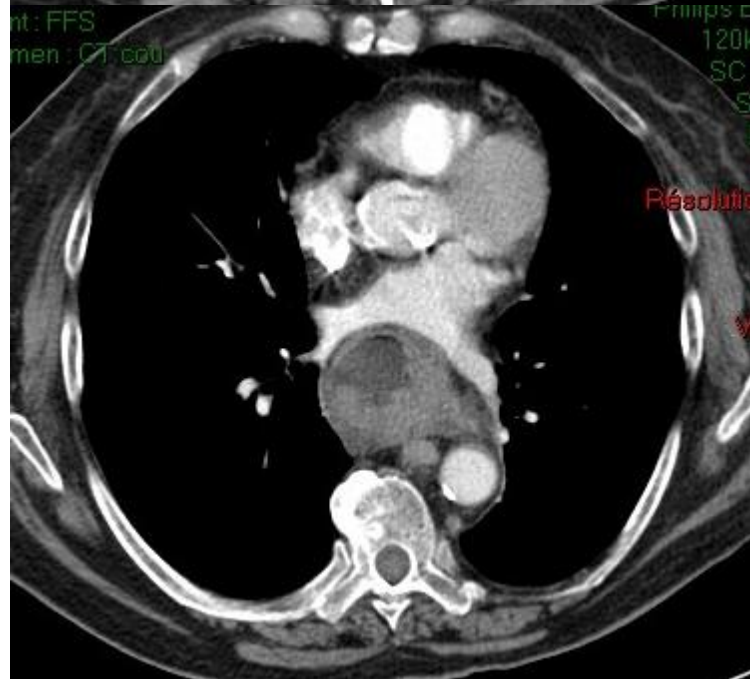
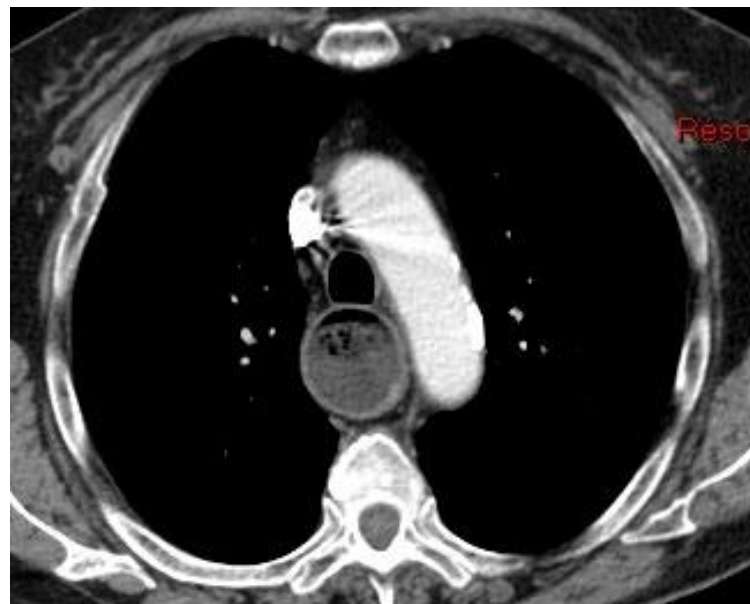
Cancer œsophage et TNM

- T :
 - Envahissement local
 - Perte interface graisseux
 - Déplacement ou indentation sur les structures adjacentes (cœur, bronches, trachée);
 - si contact $> 90^\circ$ aorte
 - Oblitération du triangle graisseux entre œsophage, aorte et colonne
 - Longueur de la tumeur



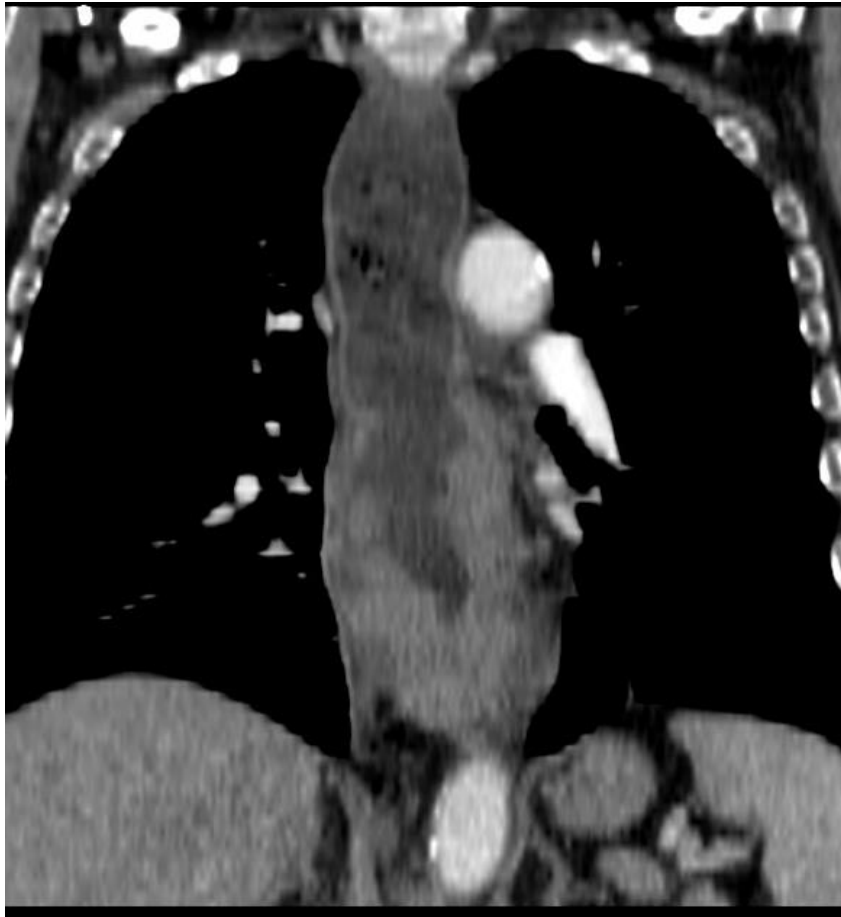
examen : Oesophage, Estomac, Duodénum
p : e43347551c
0

1002 (TOUT) >



nt : FFS
men : CT cot

Primp's d
120k
SC
S
T
V



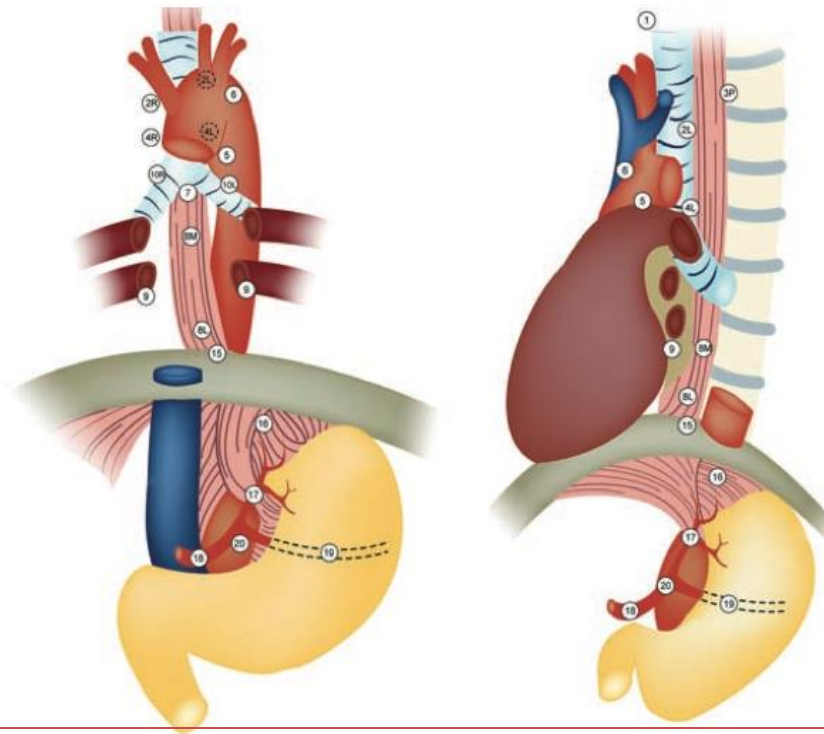
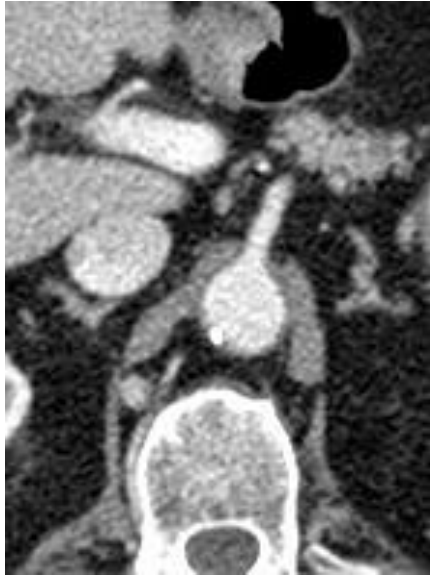
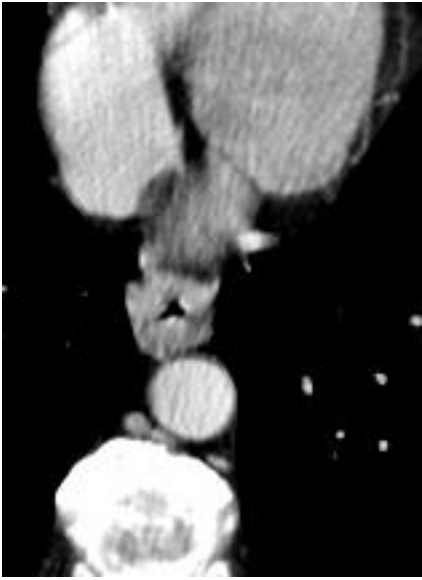
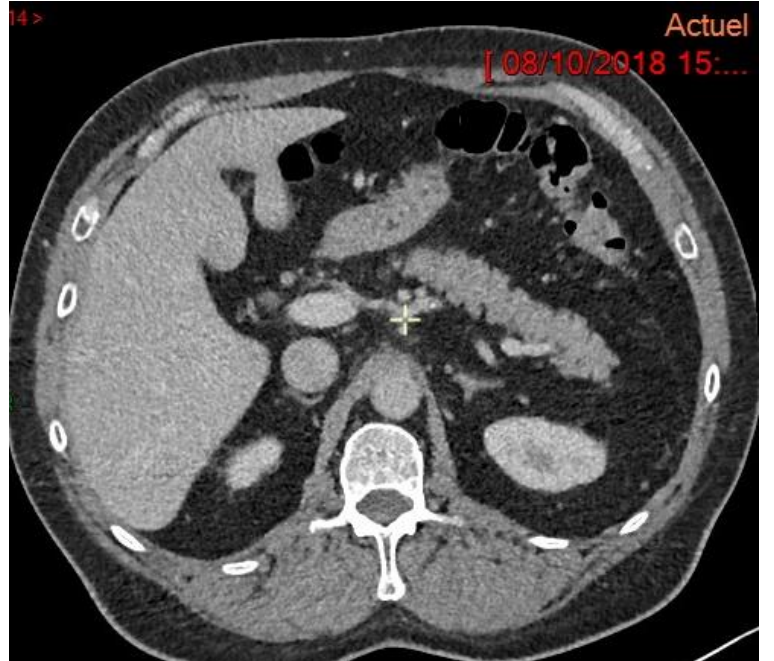
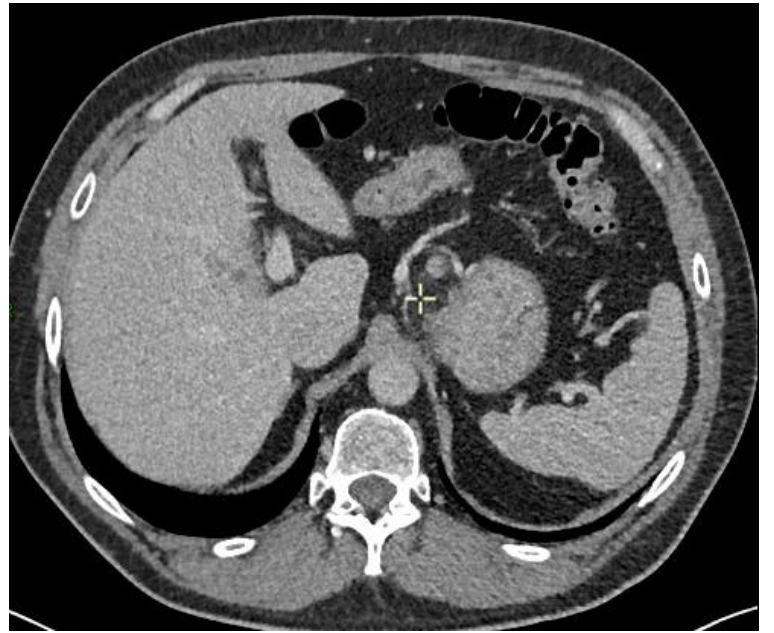
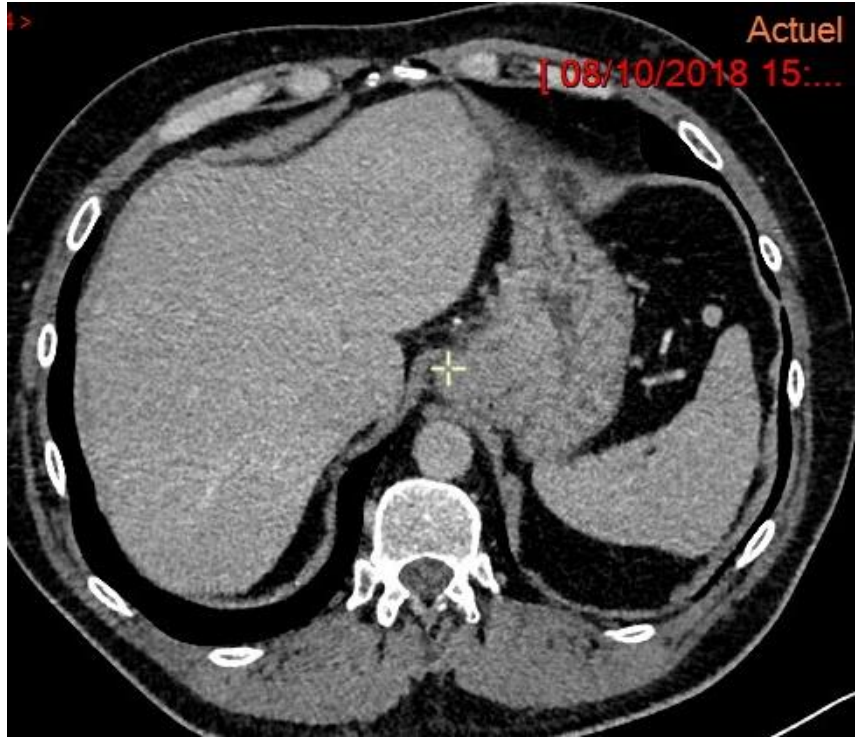


Figure 9. Drawings (anterior view, left; left lateral view, right) illustrate lymph node maps for esophageal cancer. Lymph node stations: 1 = supraclavicular, 2L = left paratracheal, 2R = right paratracheal, 3P = posterior mediastinal, 4L = left tracheobronchial angle, 4R = right tracheobronchial angle, 5 = aortopulmonary, = anterior mediastinal, 7 = subcarinal, 8L = lower paraesophageal, 8M = middle paraesophageal, 9 = inferior pulmonary ligament, 10L = left hilar, 10R = right hilum, 15 = diaphragmatic, 16 = paracardial, 17 = left gastric, 18 = common hepatic, 19 = splenic, 20 = celiac. (Reprinted, with permission, from reference 21.)

- N:
 - Thorax (sus claviculaire)
 - Petit axe 5 mm
 - Abdomen
 - Petit axe 10 mm
 - Dd ganglions gastriques gauches (résécables) et coeliaques (non résécables)
 - GG : plus hauts et plus antérieurs



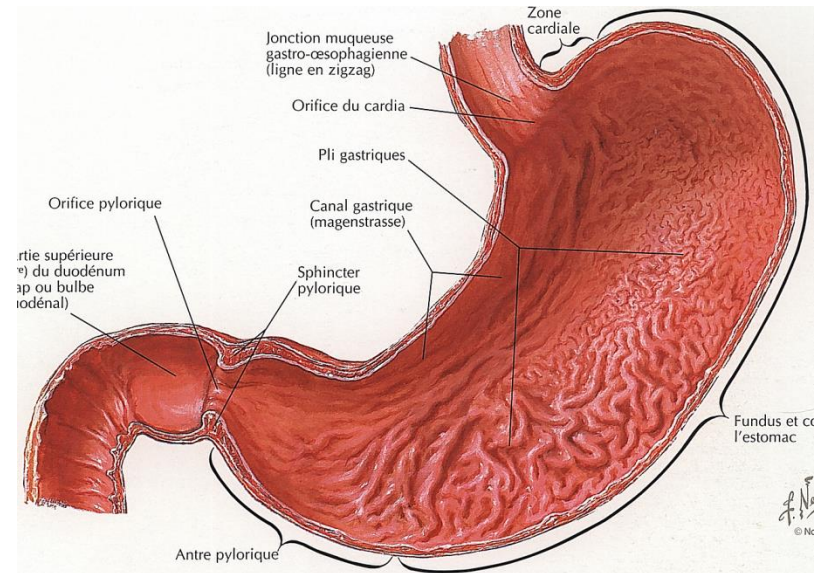




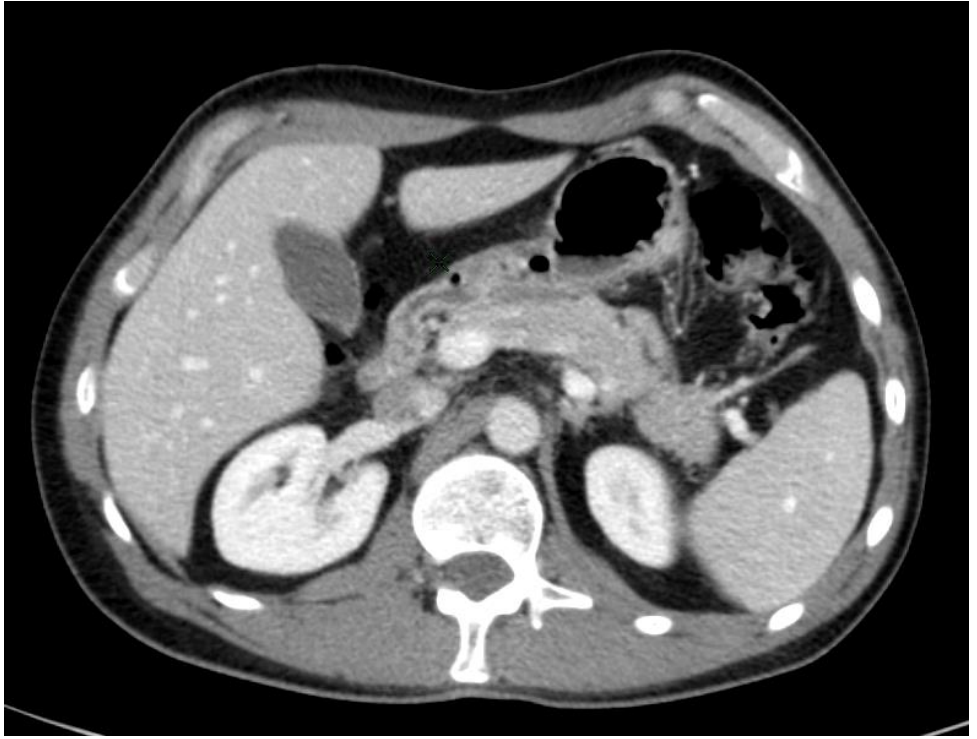
- M:
 - Foie : hypo
 - Poumon
 - Os

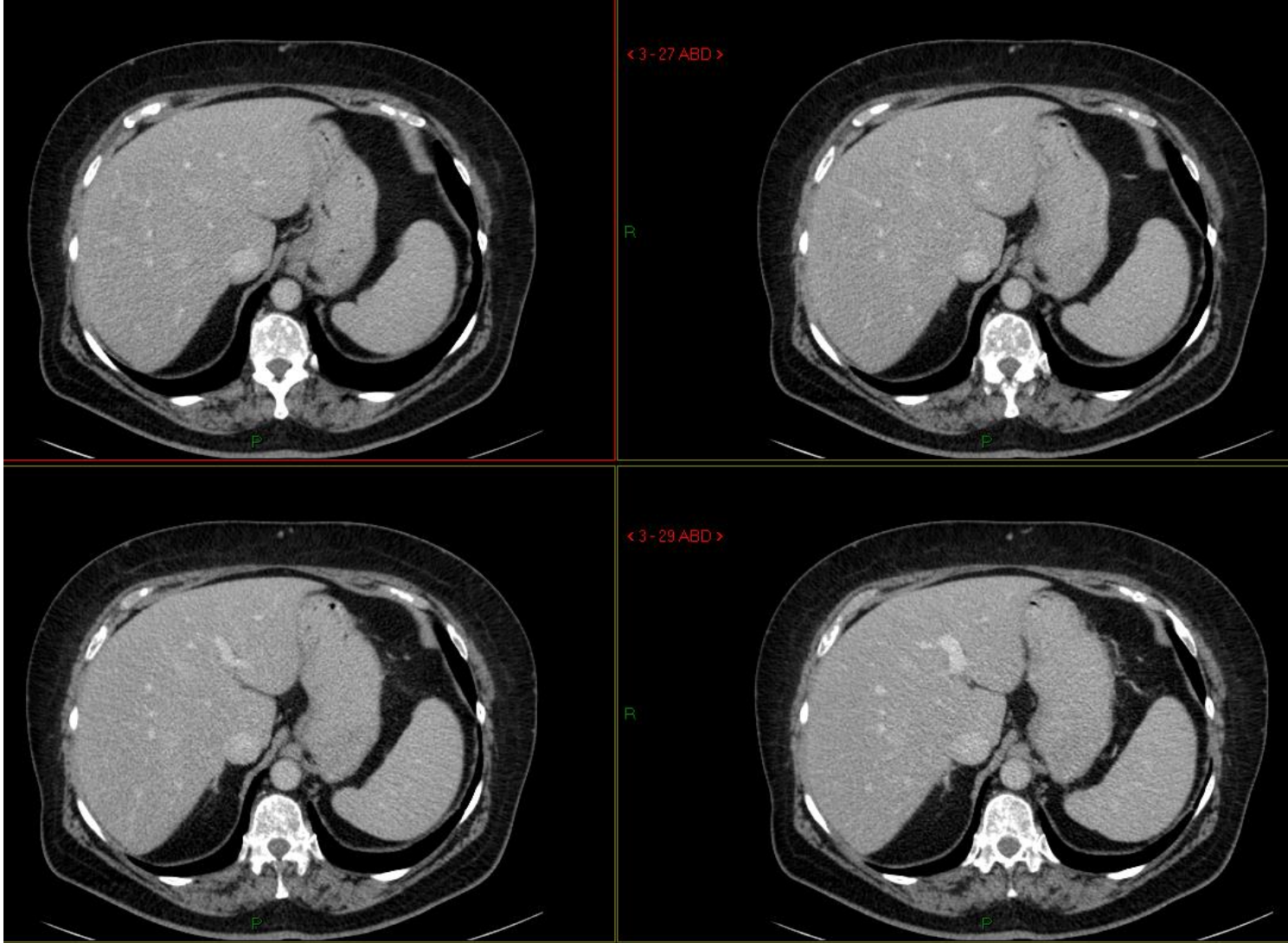
Estomac

- Forme en J
- Deux faces : antérieure et postérieure
- Deux bords : petite et grande courbures
- Divisions
 - Cardia : extrémité supérieure
 - Fundus ou grosse tubérosité
 - Corps
 - Antre prépylorique
 - Pylore (sphincter) : extrémité inférieure
- Plis gastriques



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





Grosse tubérosité: épaisseur de sa paroi

- < 10 mm : sensibilité : 100 %, spécificité : 42 %
- < 20 mm: sensibilité : 50 %, spécificité : 88 %



corps gastrique
< 5 mm

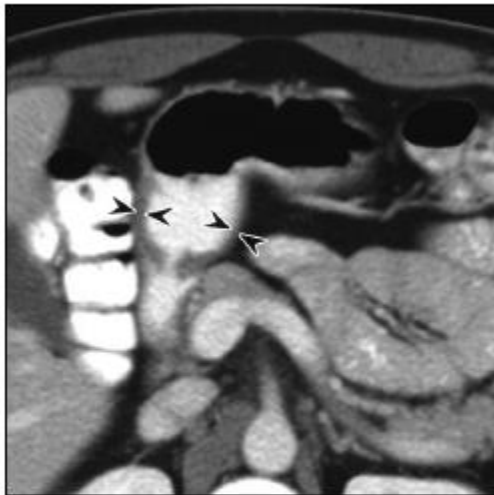


Fig. 1.—Contrast-enhanced axial multidetector CT (MDCT) image in 36-year-old man without gastric disease shows mild to moderate uniform concentric wall thickening involving well-distended gastric antrum (*arrowheads*). Pylorus and duodenal bulb are well depicted on this image. This appearance of gastric antrum was most common on MDCT.

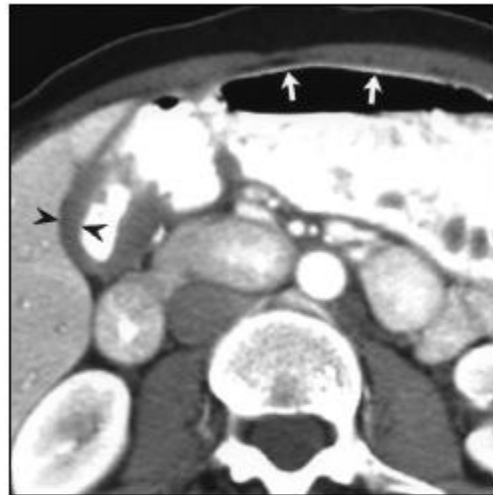


Fig. 2.—Contrast-enhanced axial multidetector CT image in 45-year-old woman without gastric disease shows prominent short-segment circumferential wall thickening (*arrowheads*) of distal gastric antrum. Note thin-walled gastric body (*arrows*).

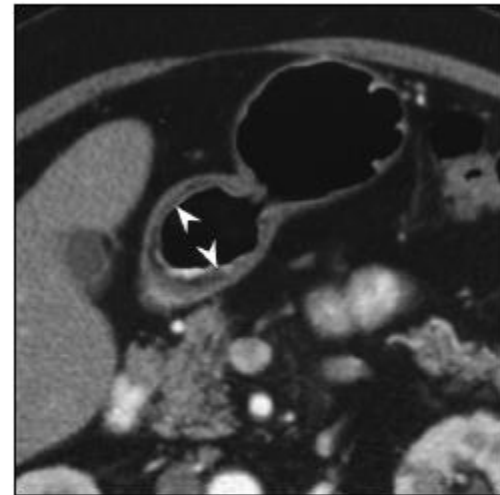
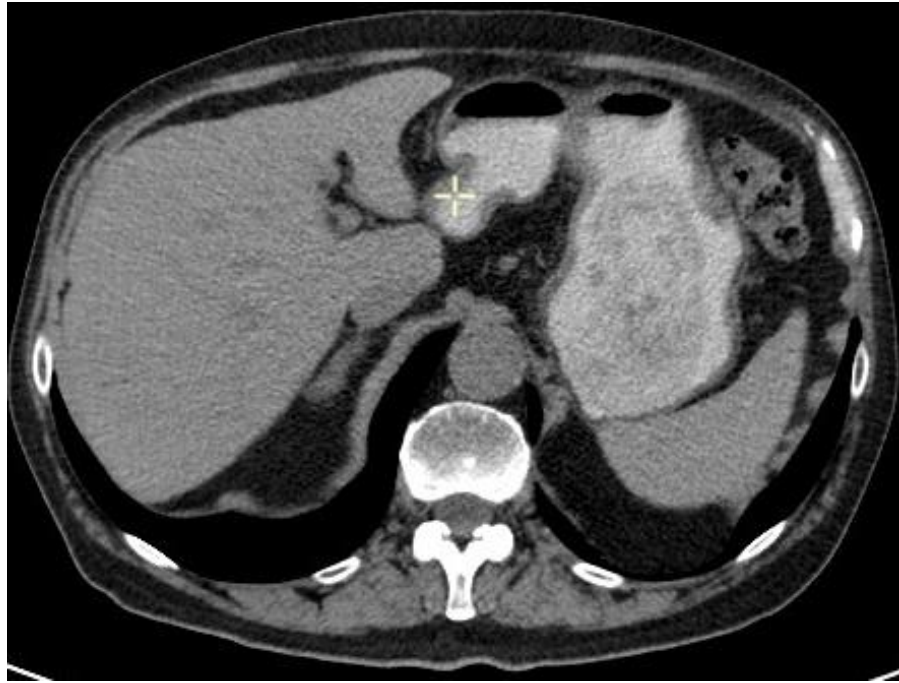
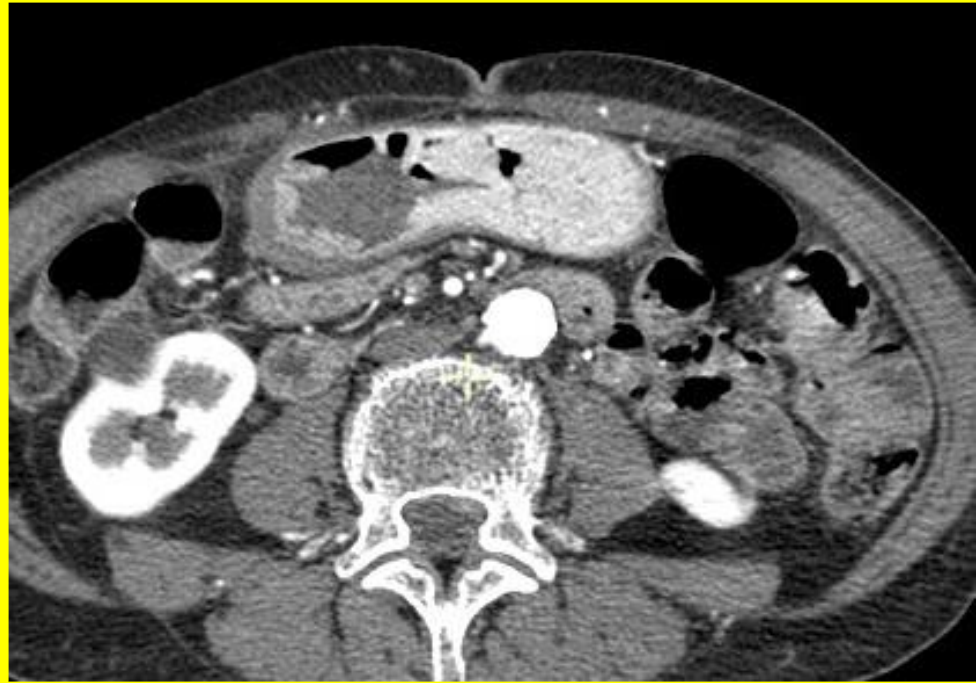
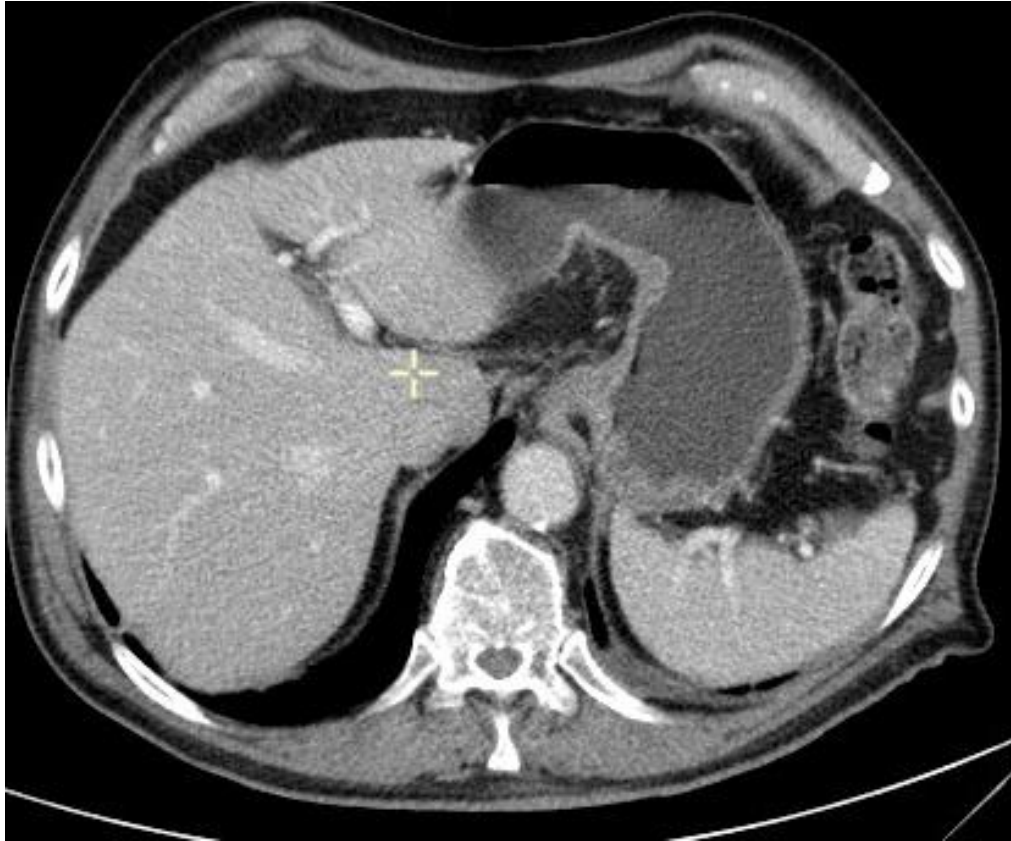


Fig. 3.—Contrast-enhanced axial multidetector CT image in 65-year-old man without gastric disease shows moderate antral wall thickening (*arrowheads*) relative to gastric body. Note linear submucosal fat attenuation in area of antral thickening.

antre < 12 mm







Estomac

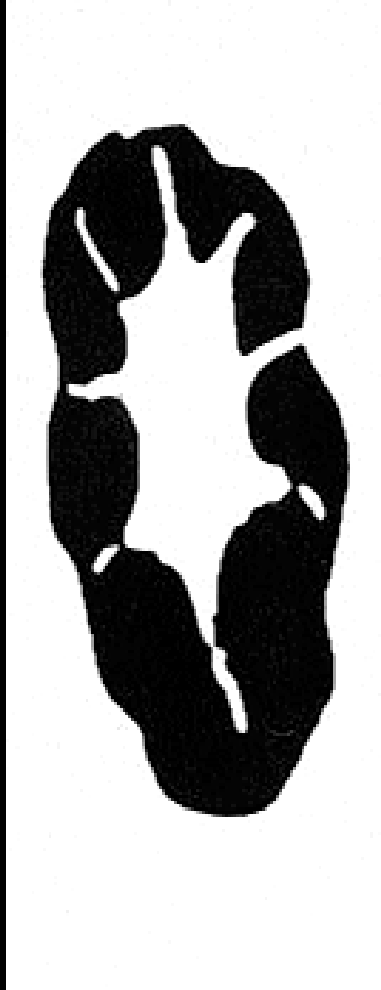
	US endo	RX	CT	Pet CT
Détection	endoscopie			
Stadification	+		+	+
Suivi	+		+	+

Tumeurs primitives :

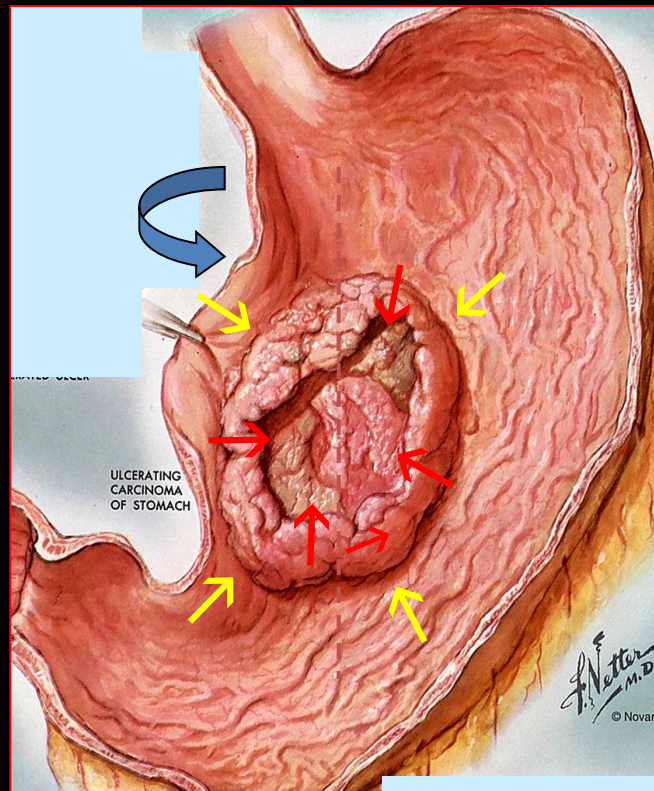
- Carcinomes :75 %
 - Linite : K peu différencié, ou métastase K sein ou Lymphome
- Lymphomes : 20 %
- GIST: localisation gastrique préférentielle: 1 à 2 %

Métastases:

- Sein
- Poumon
- Ovaire
- mélanome



face



ulcération ←

couronne tumorale
nodulaire ↙

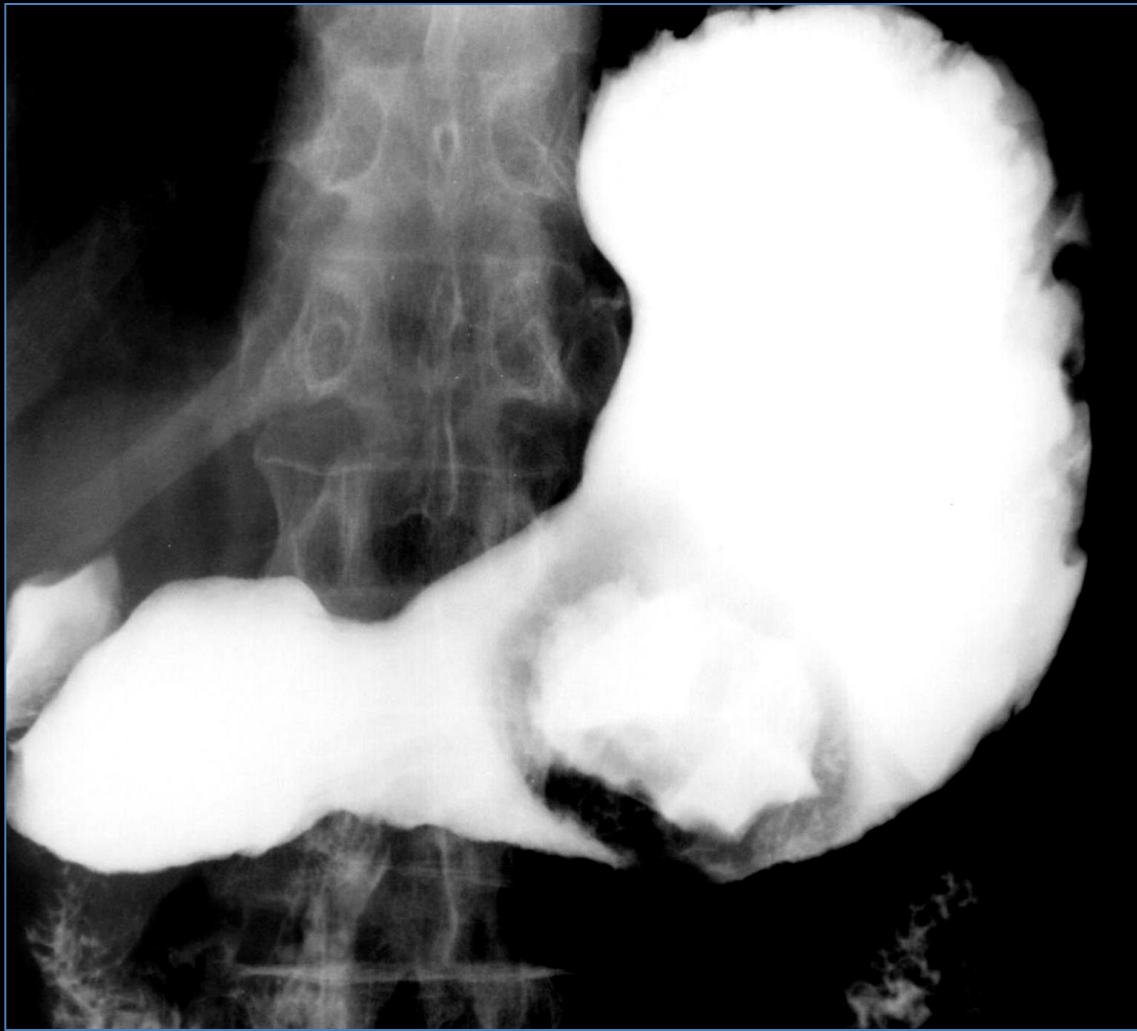
tumeur maligne ulcérée



"en ménisque"

profil

incidence - Europe : 6 / 100.000
- Japon : 160 / 100.000



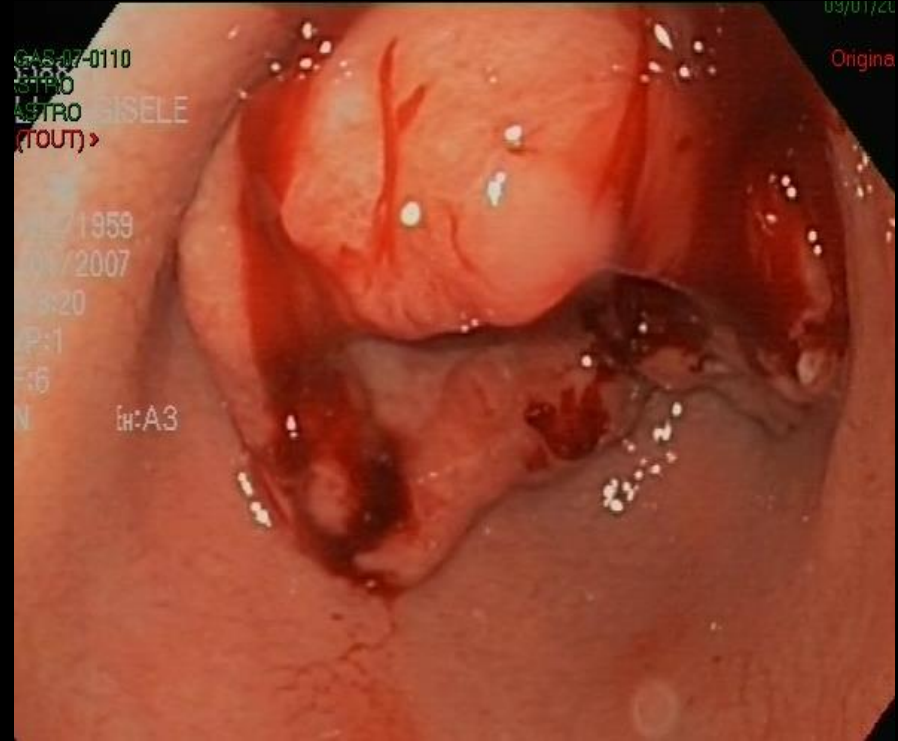
adénocarcinome
ulcéré

(vue de face)



جملہ نتائج

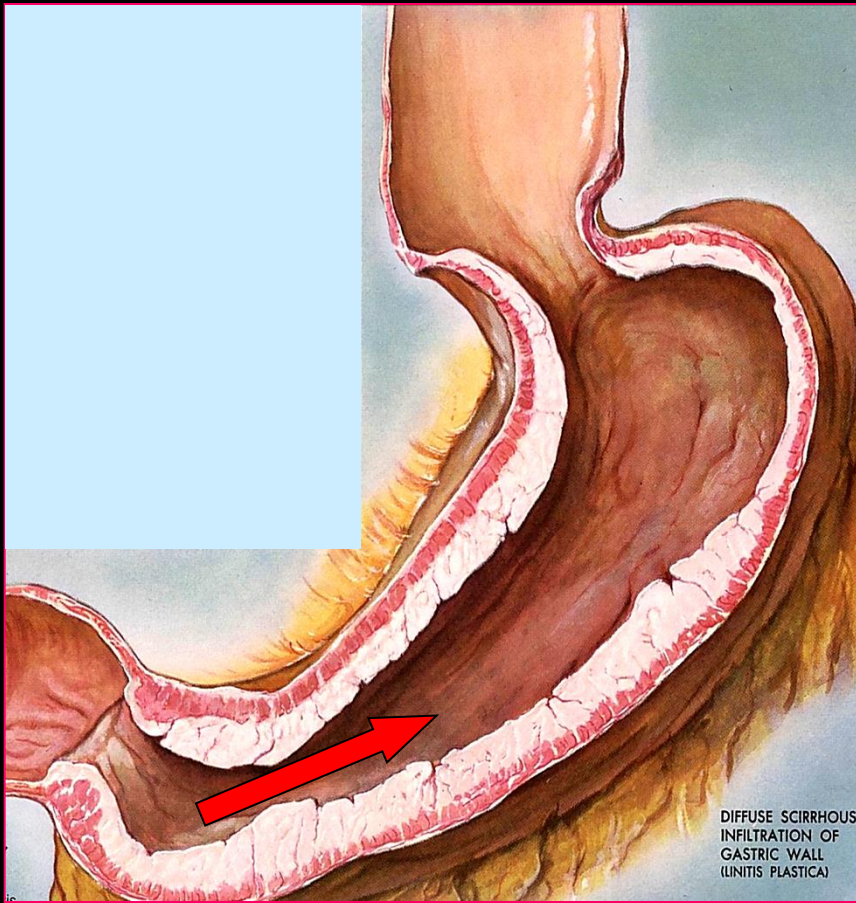
FW 3
SW 3
108%



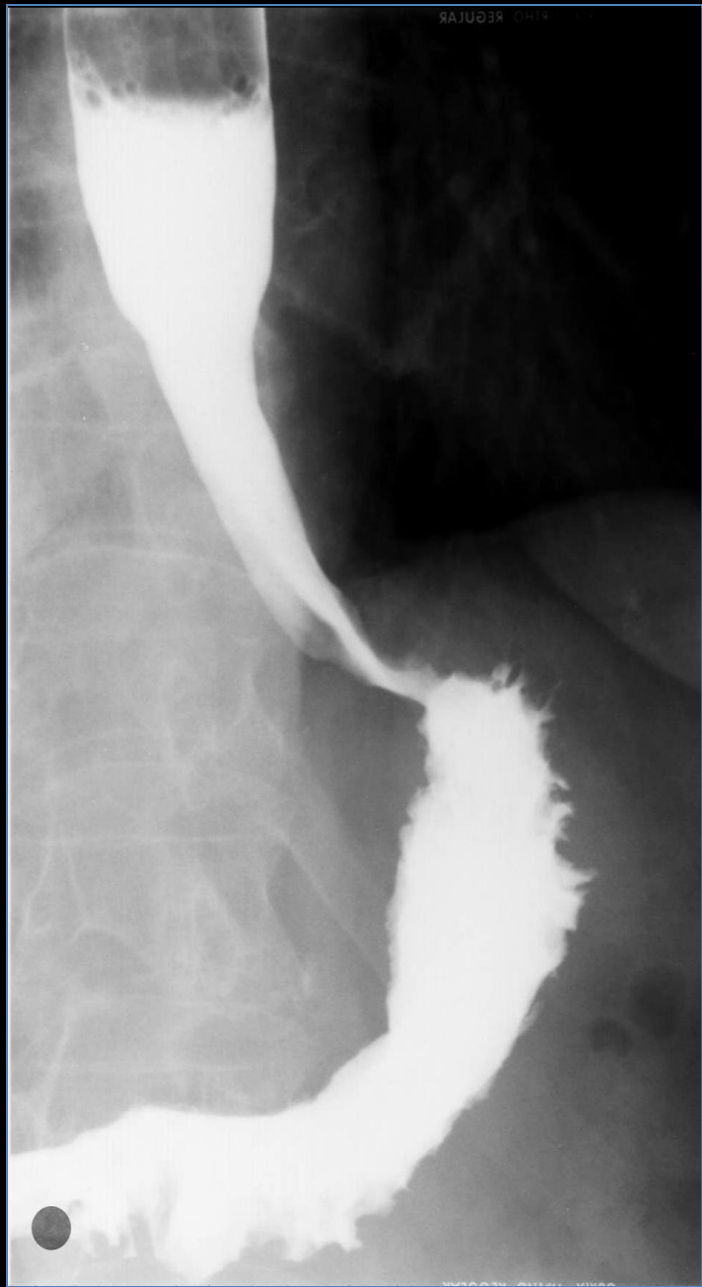
GAS 07-0110
SIBO
ASTRO
(ROUT) >

02/1959
07/2007
19:20
P:1
6
N H:A3

03/01/20
Origina



cancer infiltrant (linite plastique)



a

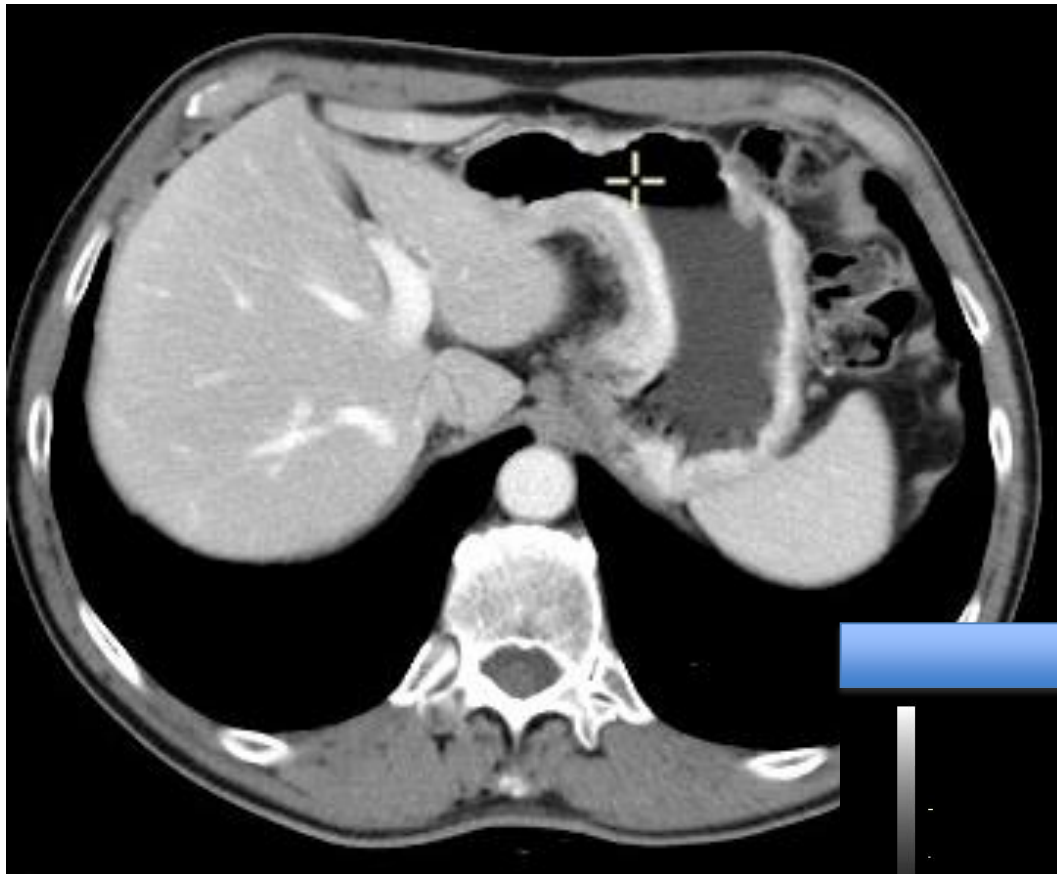


linite plastique /

extension oesophagienne

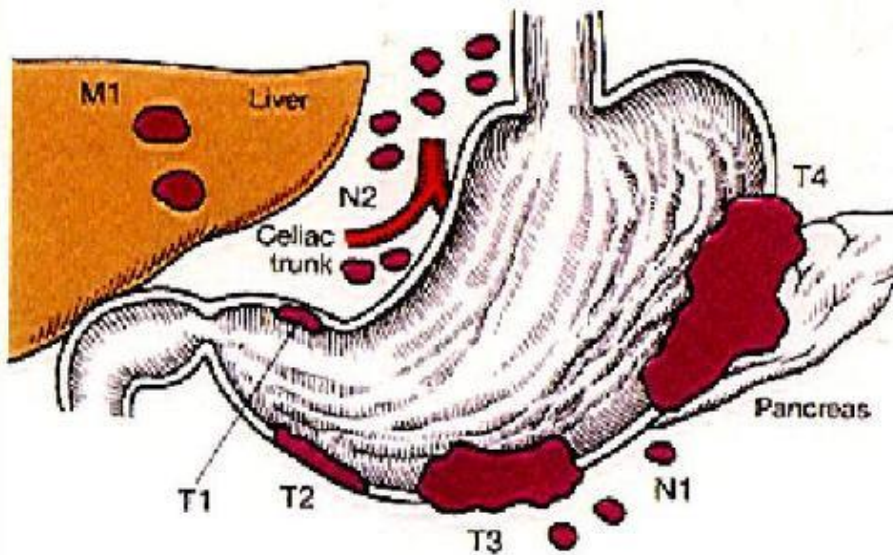
pseudo-achalasia





Néoplasie gastrique et extension

- N: ganglions régionaux



Medscape ©

<http://www.medscape.com>



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

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.

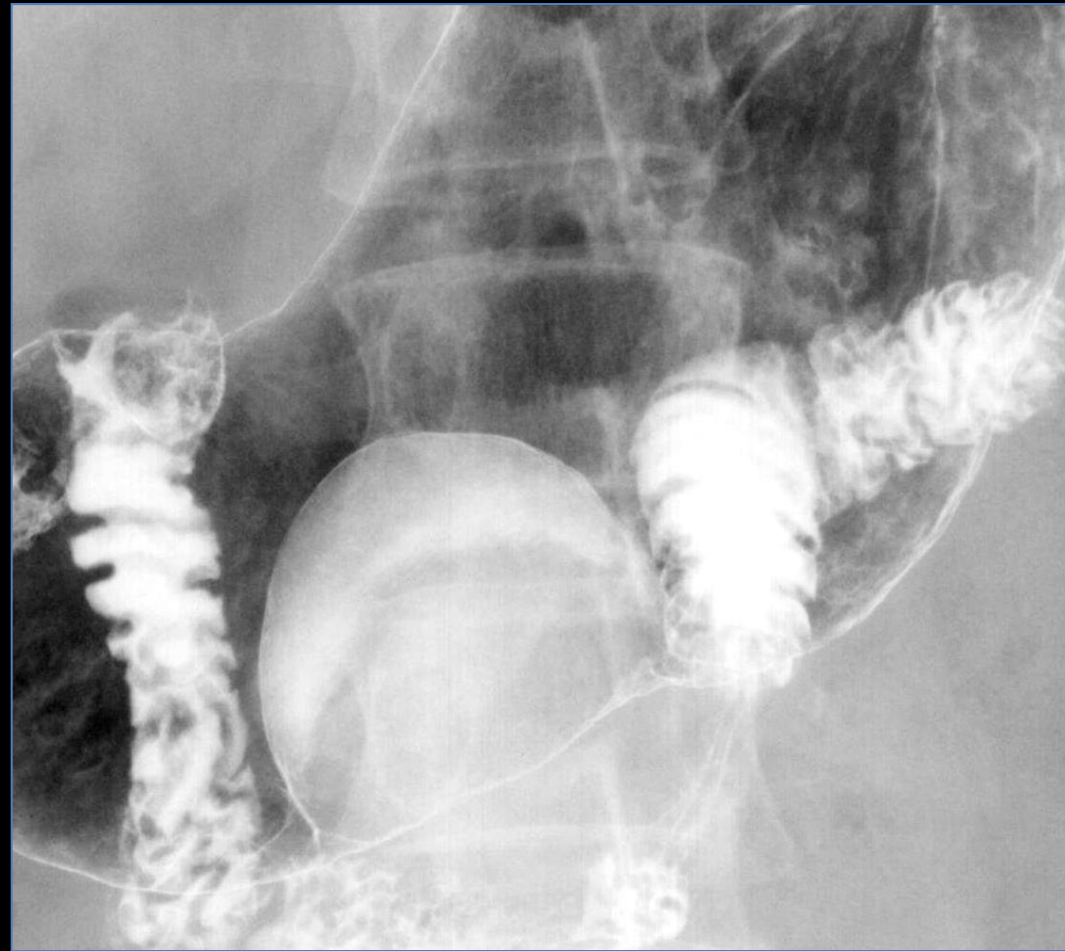
Critère de malignité : > 5 cm

Diagnostic initial

- de la lésion
- des localisations secondaires

Suivi

- De la lésion
- des localisations secondaires
 - critères de Choi



a

tumeur sous-muqueuse
contour lisse
angles de raccord droits ou (obtus)

léiomyome

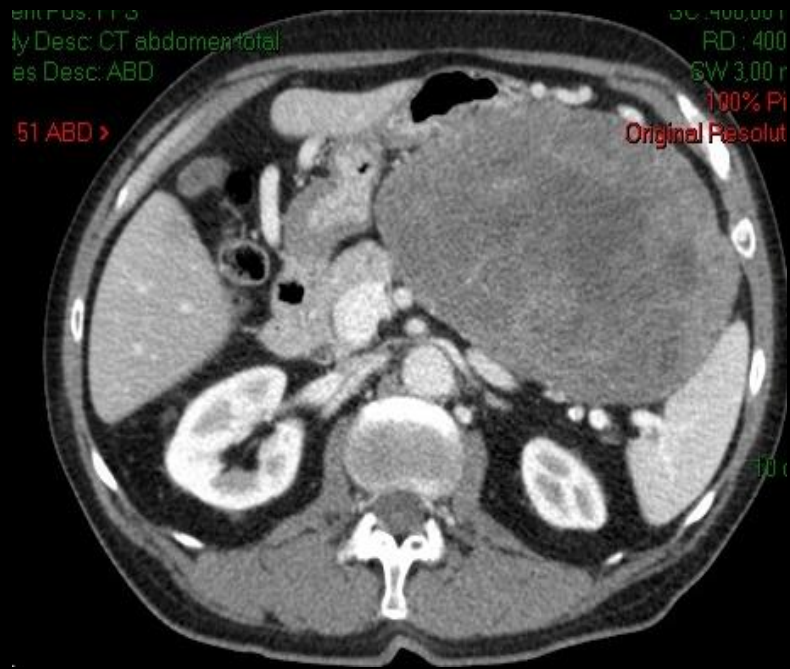
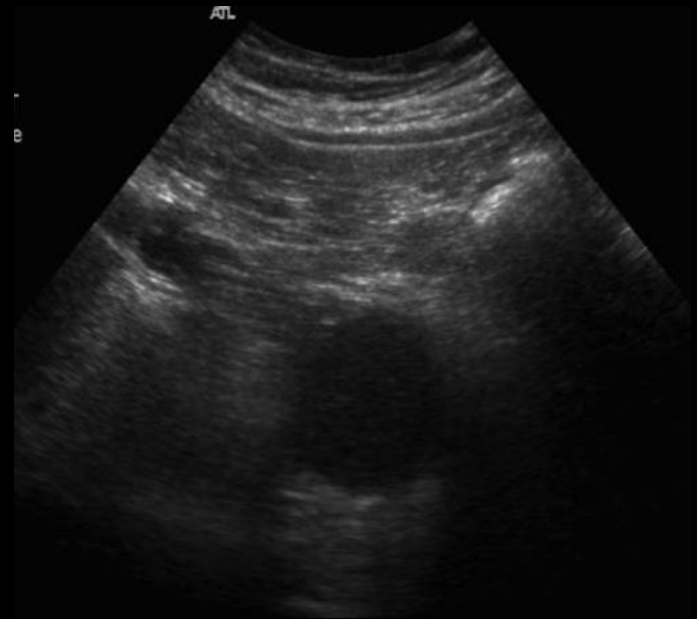
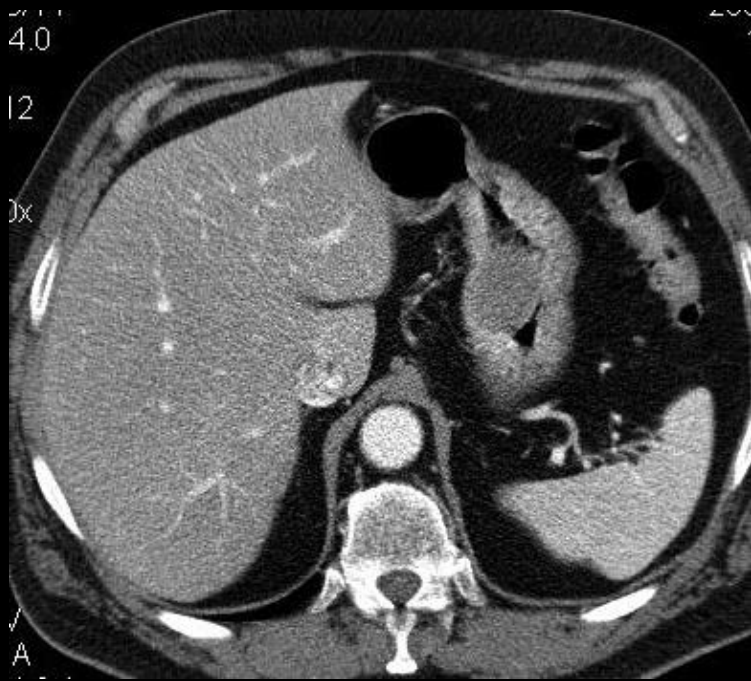


Table 2 Response criteria and modified CT criteria according to RECIST and Choi

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].

^aComplementary recommendation of the German GIST Working Group: density changes should account for at least 10 HU.

Cancer colo-rectal et imagerie

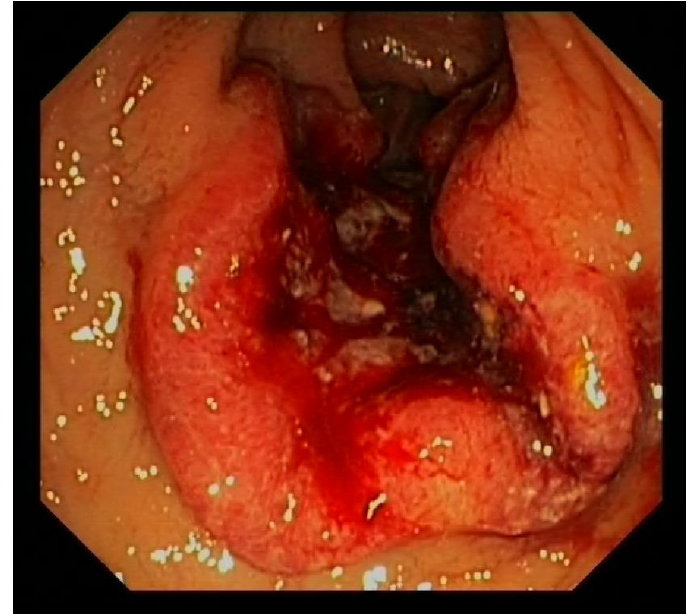
Contexte

- Cancer Colo-rectal :
 - 2^e F, 3^eme H,
- Pronostic basé sur des facteurs multiples

- Facteurs majeurs
 - T4
 - Perméation extramurale veineuse
 - Perméation lymphatique
 - GGLs < 8
 - R1 ou R 2
 - Perforation
- Facteurs mineurs
 - Infiltration périnerveuse
 - GGLS $\geq 8 < 12$
 - Grade (dédifférencié)
 - Carcinome mucineux, petites cellules, « signet ring cells »
 - Obstruction

Stadification locale d'un cancer colo-rectal

- Colon
 - CT
- Rectum
 - US endo
 - MR
 - (CT)



TNM COLON et Imagerie = CT

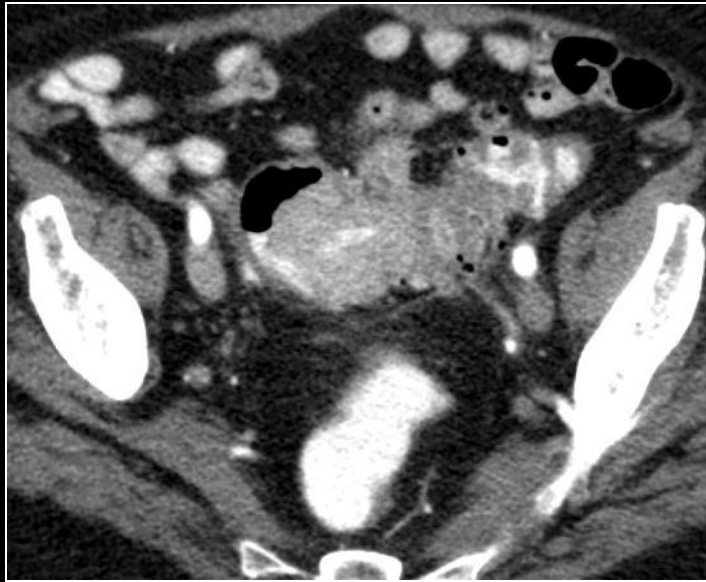
Cancer du Colon & CT :

- Paroi > 6 mm
- Hétérogénéité
- Epaissement
 - Nodulaire
 - Irrégulier
 - Asymétrique
- Longueur
- Infiltration de la graisse de voisinage

Lésions coliques aiguës et CT

	Topo	épaisseur mm	Hétérogénéité pariétale	Graisse Sous- muqueuse	Grêle	Ascite	Abcès
Crohn	R//>L	11-16	30 %	8 %	57 %	8 %	35 %
UC	L	10	70 %	61 %	4 %	-	
PSM	L	11-15	44 %	6 %	6 %	20- 57 %	
Infection	R	8	73 %		36 %	46 %	
Ischémie	L>R	9-12	46 %		8 %	30 %	
Radique	L	9	30 %			-	
GVH	R	9.6	100 %	33 %	100 %	28-45 %	
Neo	...	18	Inconstant	-	-	+/-	pfs

Néoplasie colique : signes CT



- **Epaississement pariétal marqué 18.2mm**
- Aspect nodulaire, irrégulier et **asymétrique (57%)**
- **Extension courte (<89mm)**
- **Angle de raccord abrupt (100%)**
- **Adénopathies (78%)**
- Rétrécissement luminal
- Masse infiltrant le tissu graisseux péricolique

Shellito,
NEJM
June 10, 2004

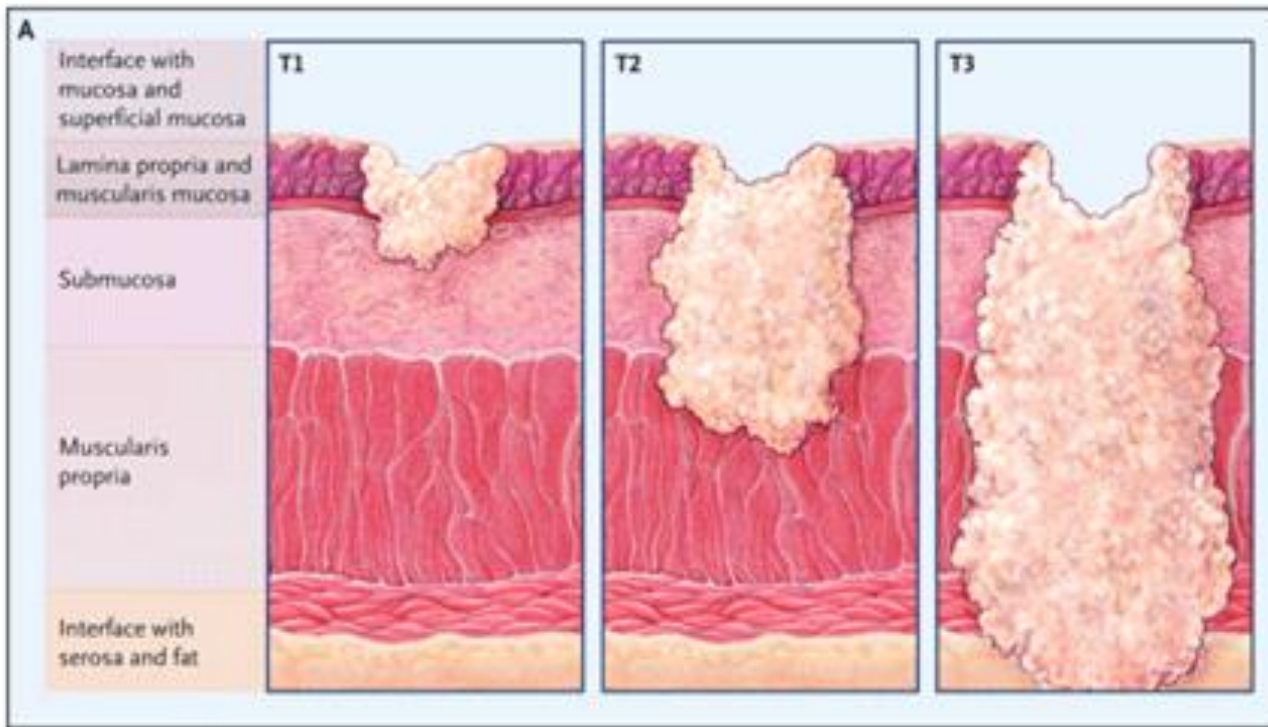


Tableau 1 • Analogie entre les anomalies histologiques et CT en fonction du stade T.

Stade tumoral	Histologie	CT
T1	Lésion localisée dans la sous-muqueuse	Lésion endoluminale sans modification des couches pariétales du colon
T2	Lésion atteignant la musculaire propre	Épaississement asymétrique, avec conservation d'une couverture musculaire régulière et d'une graisse péricolique propre
T3	atteinte de la sous-séreuse et des tissus péricoliques non péritonéaux	Projection tumorale nodulaire ou arrondie dans la graisse péricolique, et rupture du contour musculaire périphérique
T4	Atteinte péritonéale et/ou des organes adjacents	Pénétration nodulaire de la tumeur dans les espaces péritonéaux et/ou dans les organes adjacents

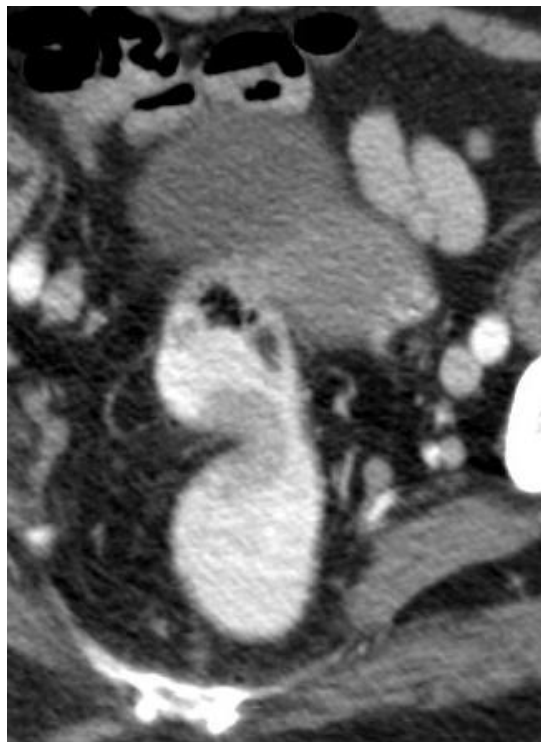
D'après Burton (2), Filippone (3) et Kanamoto (4).

Colon, CT et grade T

Réf	Auteur	Année	N	Technique	Signe	Stade T		
						Sens.	Spéc.	Fiab.
1	Elias & coll	1996	203	PC / OpH	APE	70%	68%	72%
2	Kwang Nam & coll	2006	39	PC / IC	Spiculation	80%	70%	-
4	Balthazar & coll	1988	90	~OpH / ~IC / ~IV	Spiculation	55%	77%	95%
5	Freeny & coll	1986	80	IV	Spiculation	61%	81%	-
7	Philippone & coll	2004	38	PC / IC / Spl / IV	Cont. nodulaires	88%	94%	90%
8	Caseiro Alves & coll	1998	40	OpH / LE / Spl / IV	Cont. irrég. / spicul	90%	73%	85%
9	Burton & coll	2008	33	OpH / IV	Spicul / nodularité	43%	96%	85%
10	Smith & coll	2007	126	?	?	-	-	60%
11	Kanamoto & coll	2007	51	?	?	-	-	94%
12	Kim & coll	2007	31	?	?	73%	83%	78%

Légende: N = nombre de patients de la série / PC= Préparation colique / IC = Insufflation colique / OpH = opacification digestive haute / IV = Contraste intraveineux / Spl = spasmolytique / LE = lavement à l'eau / APE = Appréciation personnelle de l'examinateur

T1



CT

Lésion endoluminale sans modification des couches pariétales
du colon

Histologie

Lésion localisée dans la sous-muqueuse

T2



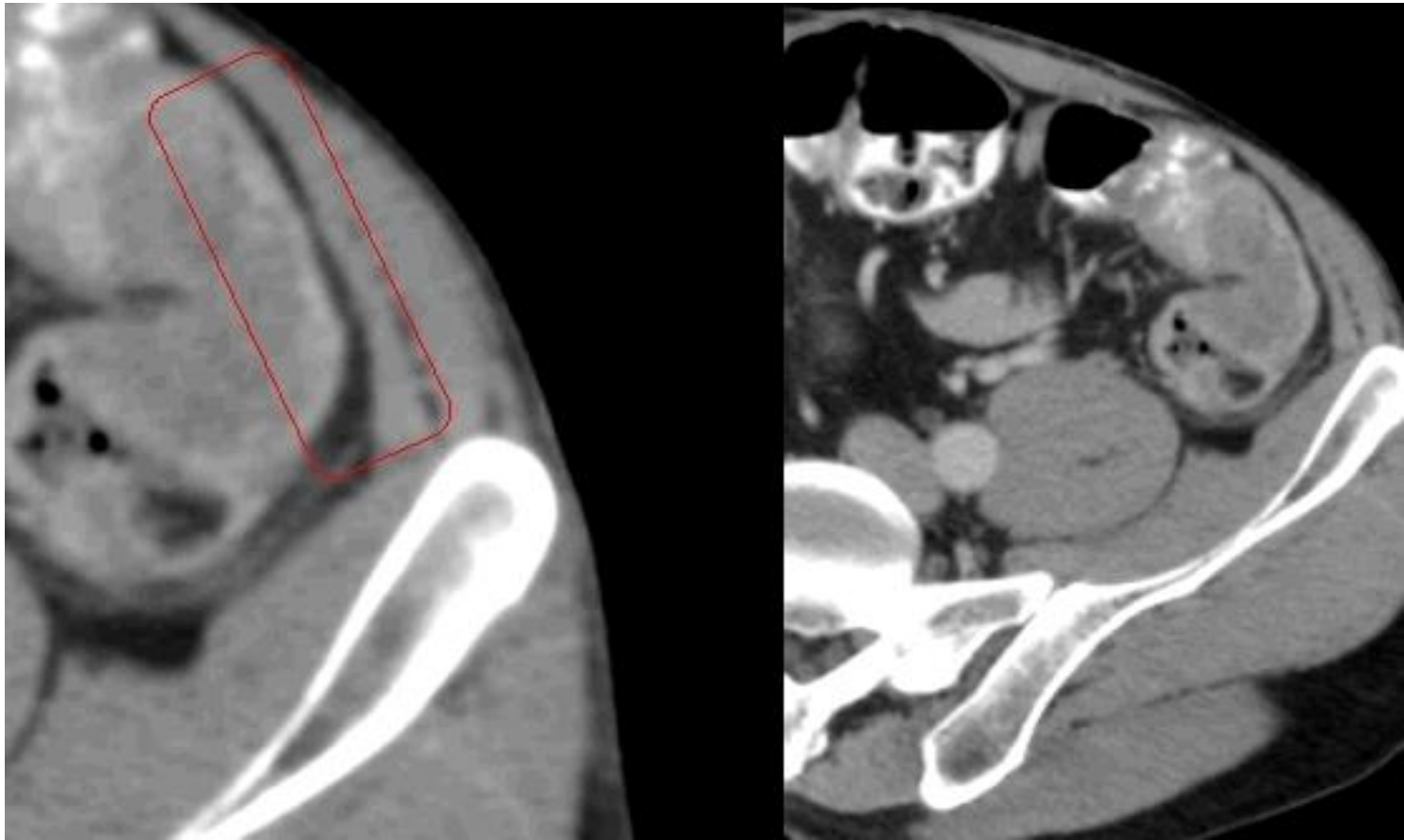
Épaississement asymétrique, avec conservation d'une couverture musculaire régulière et d'une graisse péricolique propre

Histologie

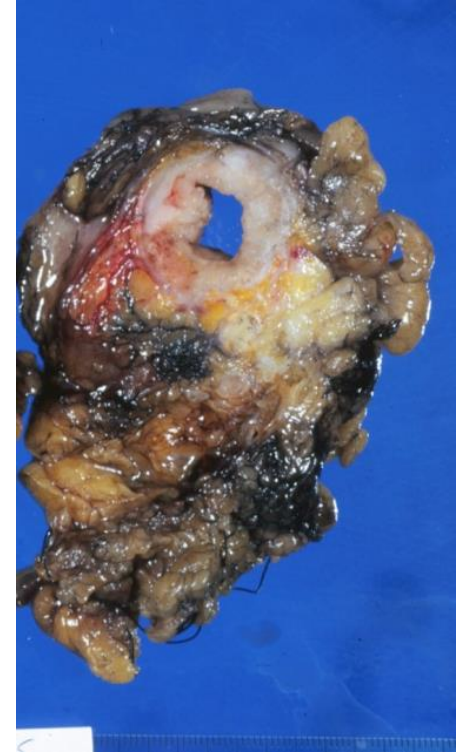
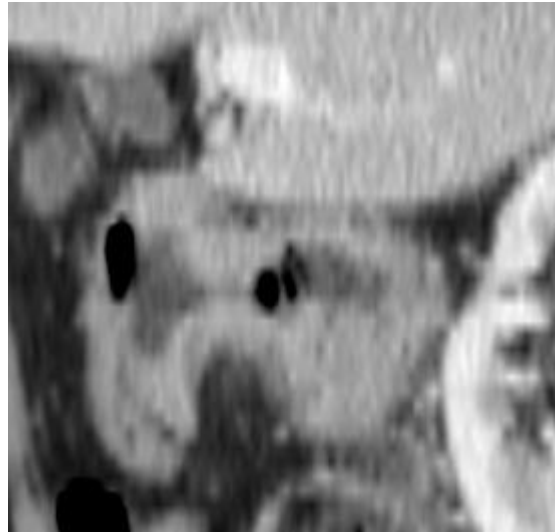
Lésion atteignant la musculaire propre

Colon, CT et grade T

Contours Tumoraux nets



T3



Projection tumorale nodulaire ou arrondie dans la graisse péricolique, et rupture du contour musculaire périphérique

Histologie

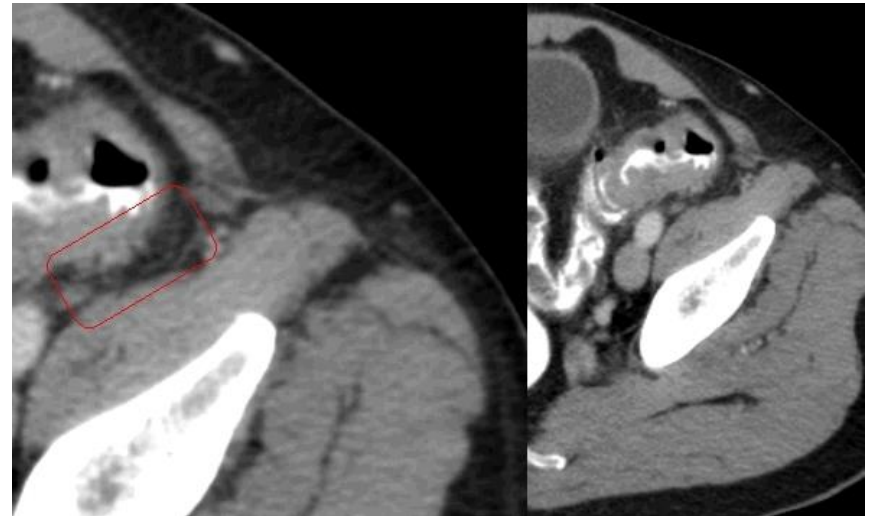
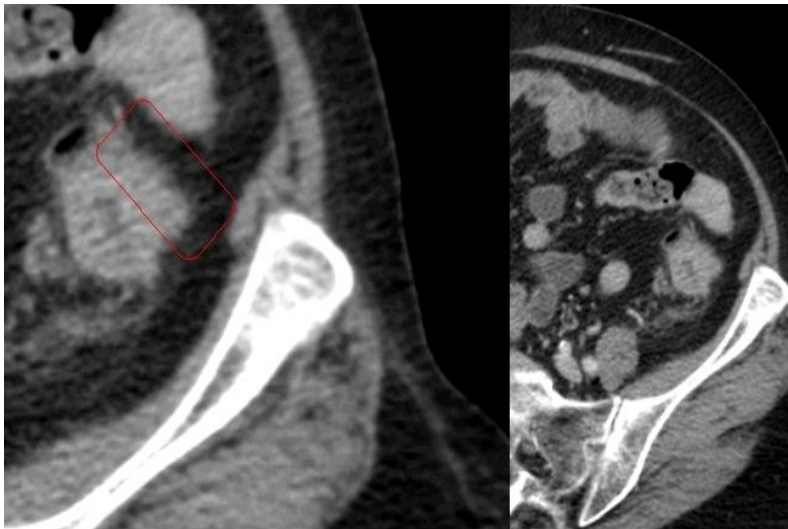
atteinte de la sous-séreuse et des tissus péricoliques non péritonéaux

Colon, CT et grade T

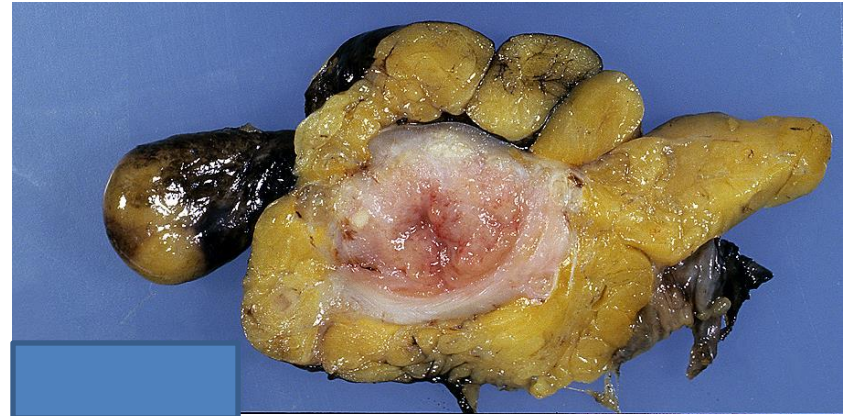
Contours Tumoraux : spiculations

fines

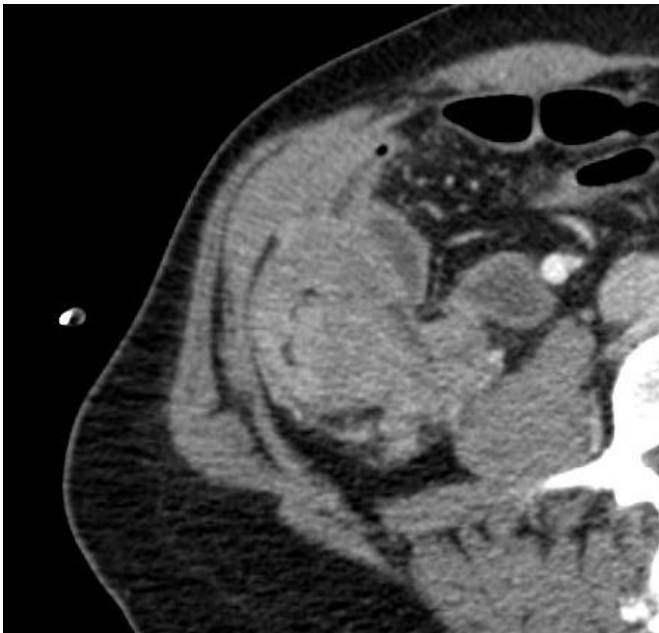
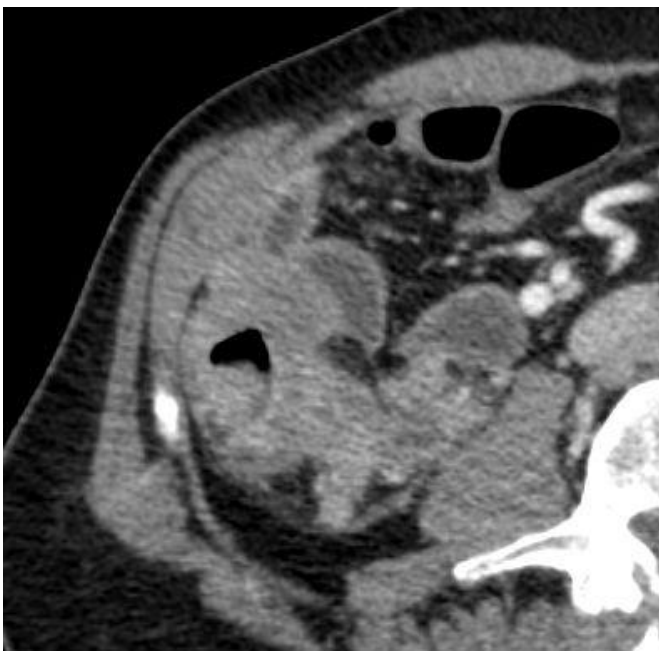
Epaisses



Contours tumoraux : flous



pT3

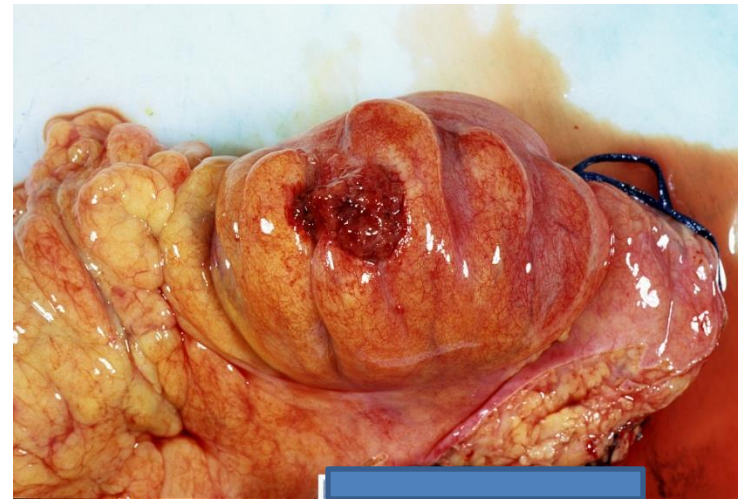


Pénétration nodulaire de la tumeur dans les espaces péritonéaux et/ou dans les organes adjacents



Atteinte péritonéale et/ou des organes adjacents





- pT4 N1M1
- Perméations vasculaires et lymphatiques

Colon, CT et grade T

- Fiabilité :
 - 40% - 95 %
 - T1-T2 vs T3-T4 : 78-97.5 %
 - T3 vs T4 : 76-83 %
- Mauvaise reproductibilité inter-observateurs

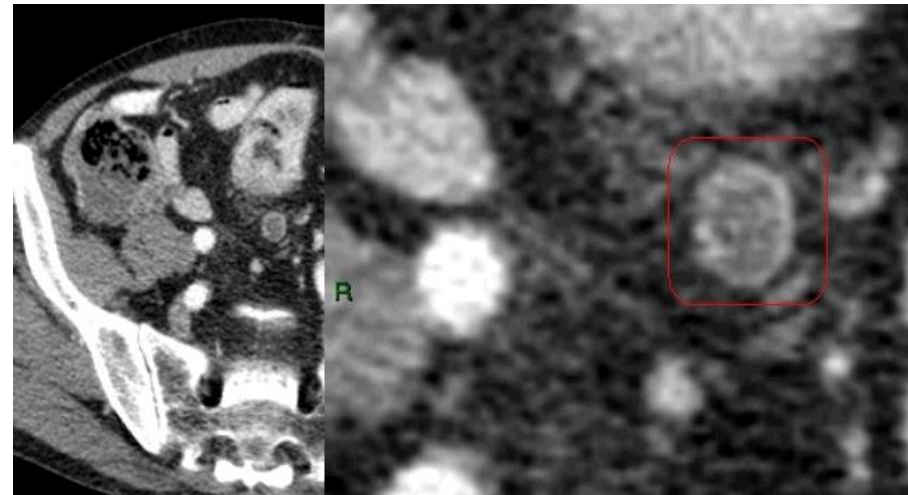
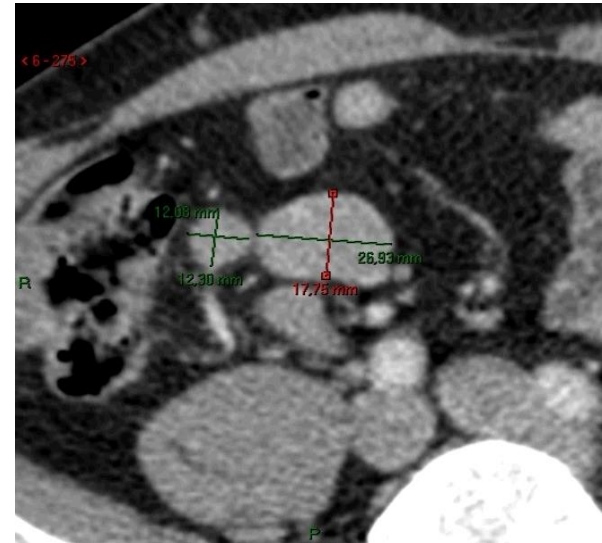
Colon, CT et Ganglions

Réf	Auteur	Année	N	Signe	Envahissement ggl		
					Sens.	Spéc.	Fiab.
1	Elias & coll	1996	203	?	56%	71%	62%
2	Kwang Nam & coll	2006	39	AT 1cm / grappe 3 / nécrose	83%	27%	-
4	Balthazar & coll	1988	90	AT 1cm / grappe 3	73%	58%	-
5	Freeny & coll	1986	80	D 1,5 cm / grappe 3	26%	96%	-
6	McAndrew & coll	1999	67	?	-	-	19%
7	Philippone & coll	2004	38	AL 1,5 cm / grappe 3	73%	87%	83%
8	Caseiro Alves & coll	1998	40	AT 0,5 cm / grappe 3	84%	83%	84%
9	Burton & coll	2008	33	AT 1cm / grappe 3	87%	57%	73%
10	Smith & coll	2007	126	?	-	-	62%
11	Kanamoto & coll	2007	51	Ratio AT / AL 0,8	-	-	81%
12	Kim & coll	2007	31	?	-	-	77%

Légende : AT = Axe transverse / D = diamètre / AL = Axe longitudinal

Colon, CT et Ganglions

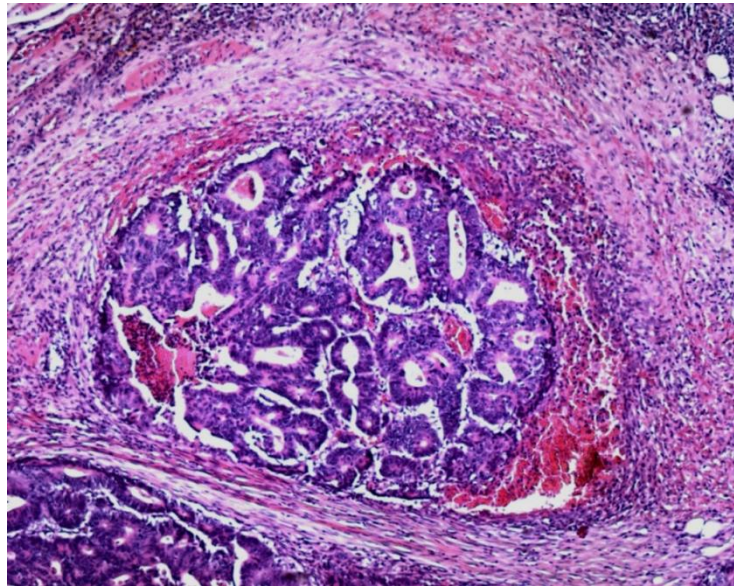
- Critères Communs :
 - Taille : transverse 5 – 6 mm;
longitudinal 10 mm
 - Groupe (au moins 3)
 - » Fiabilité : 85 %
 - Ratio grand/petit axe : 0.8
 - » Fiabilité : 80.5 %
- Atteinte ganglionnaire si aspect CT hétérogène:
 - Fiabilité 87% (p<0,001)



Perméation Vasculaire

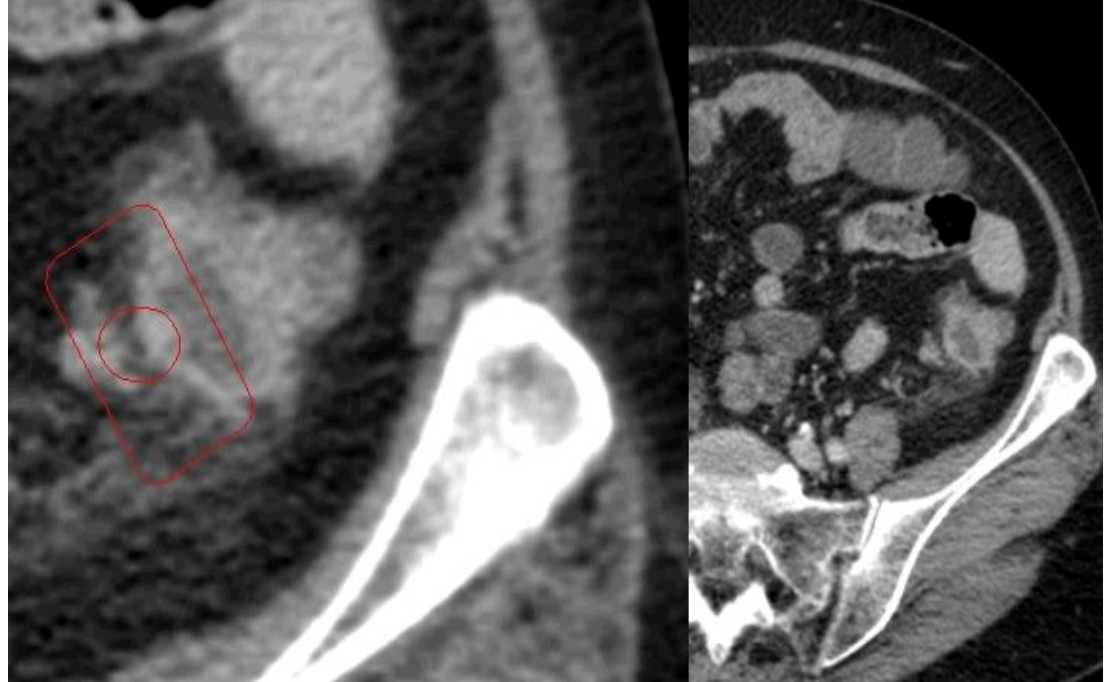
- Histologie

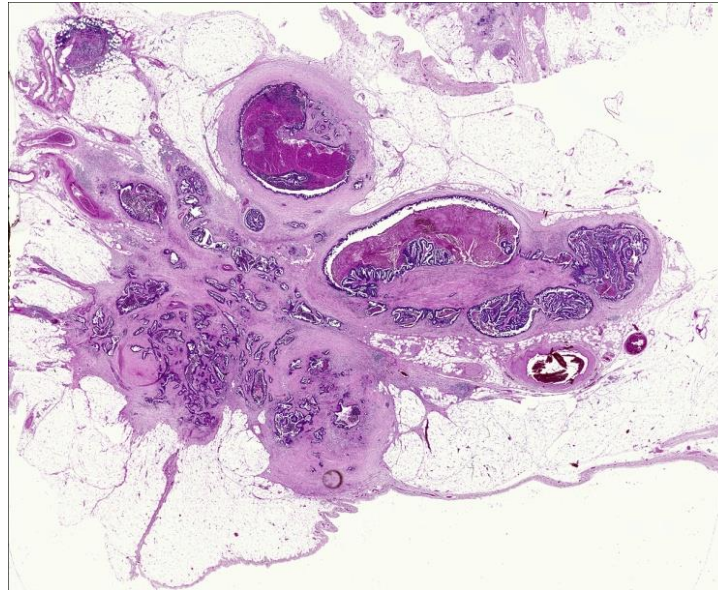
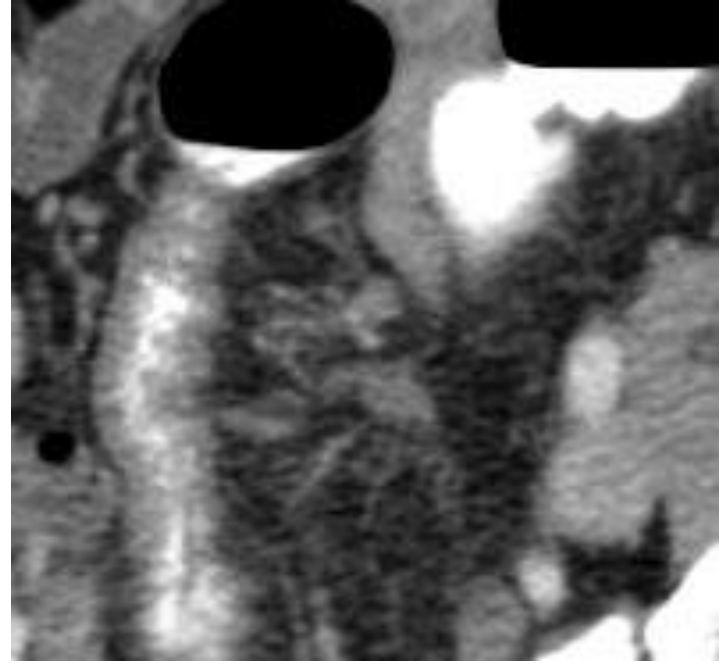
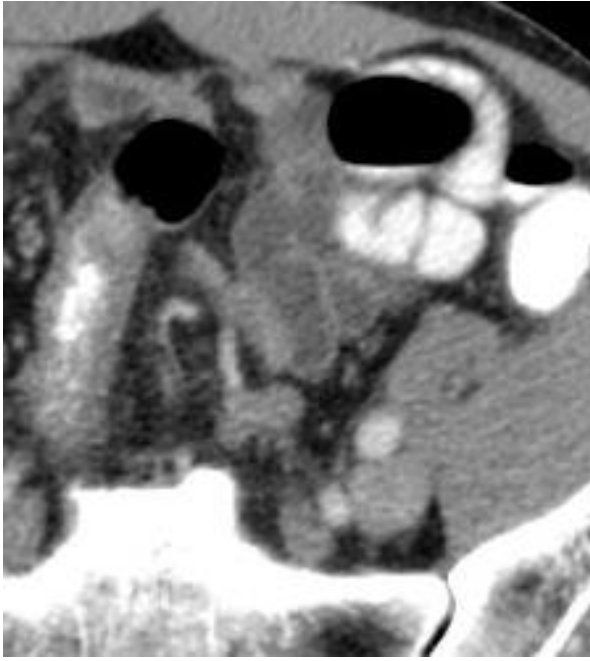
- Atteinte Intravasculaire (intrapariétale) ou extravasculaire(extrapariétale)
- Détection avec colorations (Hematoxyline & Eosine + elastine)



Critères CT pour perméation vasculaire

**Spiculations ramifiées
Ou convergentes**





Critères CT pour perméation vasculaire

- **Contact Vasculo-tumoral : pas fiable**
- **Spicules:**
 - **Sensitivity: 90%, Specificity 20%, PPV 69%, NPV 50%, Accuracy 70% (p<0,05)**
- **Limites du CT:**
 - **CT = technique macromorphologique**
 - **incapable de distinguer :**
 - vx
 - lymphatiques
 - nerfs
 - **Perméations Intrapariétale & extrapariétale:**
 - **Elles n'ont pas la même expression macromorphologique**
 - **Forme Extrapariétale: liée au pronostic: elle est utile à investiguer en CT**

Colon et CT

- Grade T

Difficile

- Atteinte ganglionnaire :

Taille

Hétérogénéité

- Perméation:

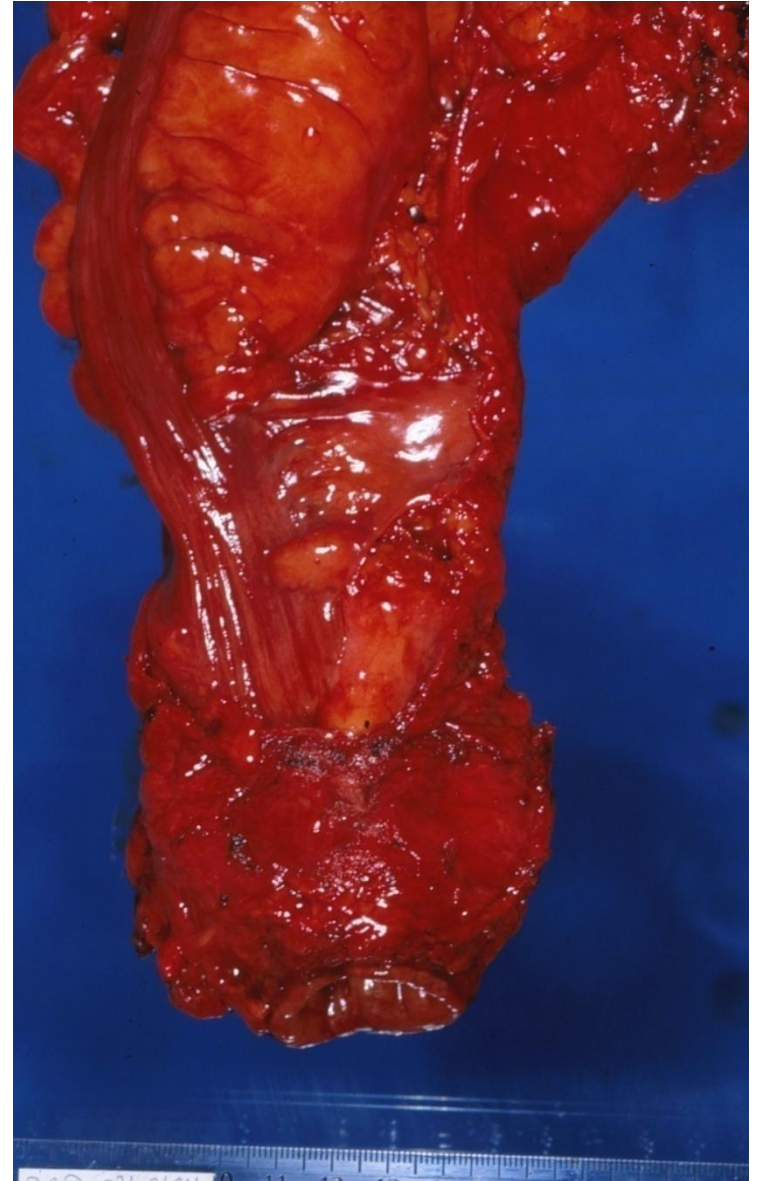
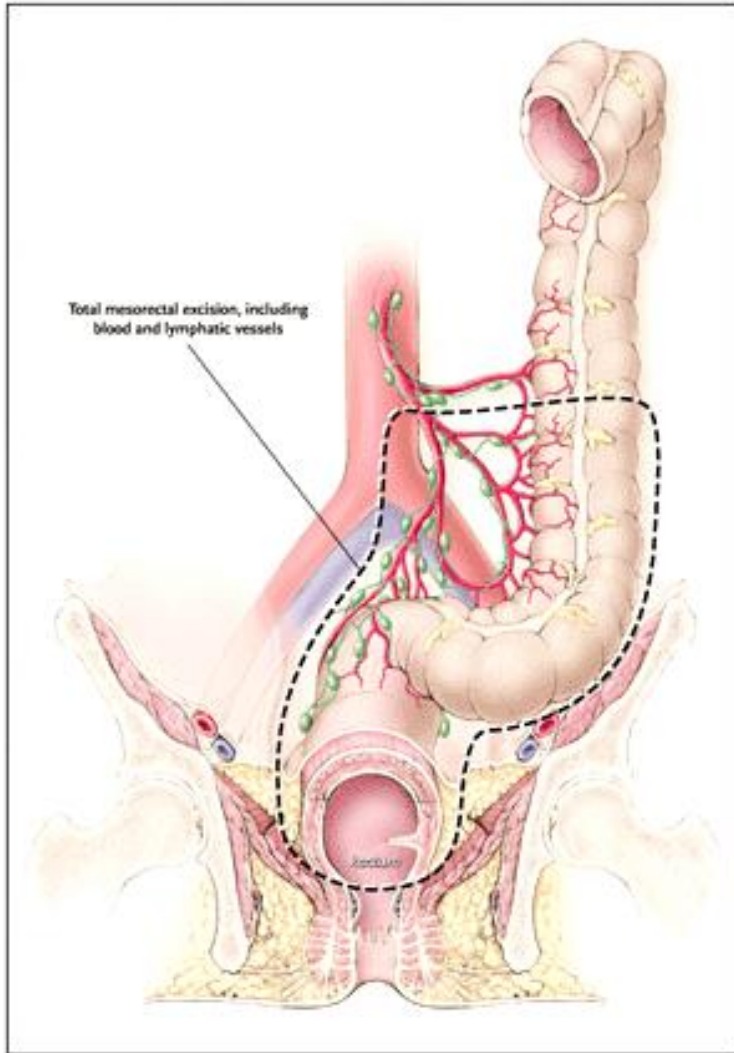
Spicules

TNM cancer du RECTUM
et imagerie

=

localement IRM

M = CT

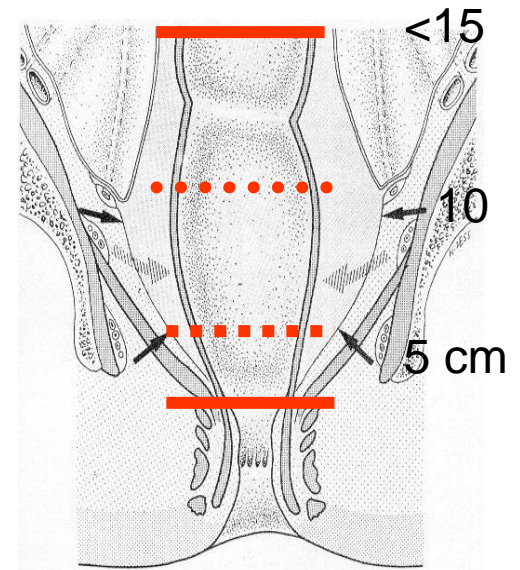


Shellito, NEJM June 10, 2004

Achievements of a national audit
followed by TME training in Norway
Colorectal Disease 2003; 5: 471-7

	1986-88 conventional	1993-99 TME
LRR (5 yr)	28%	8 %
Survival (5 yr)	55%	71%

	1/3 inf	1/3 moy	1/3 sup
cT1N0	0	0	0
cT2N0	0	0	0
cT3N0	+	+	0*
cT4N0	+	+	+
c N+	+	+	+



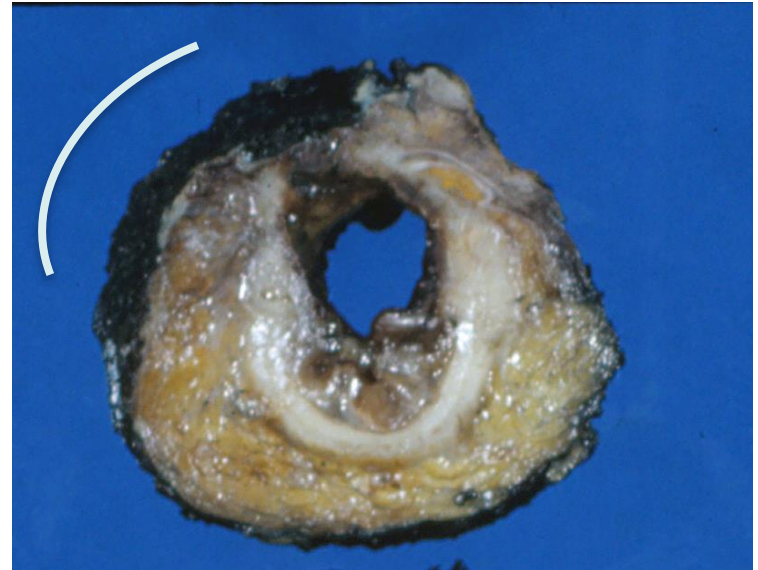
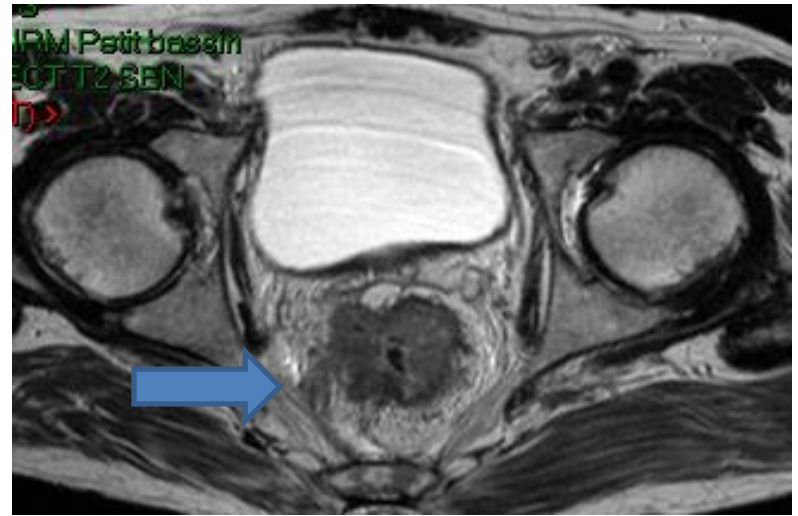
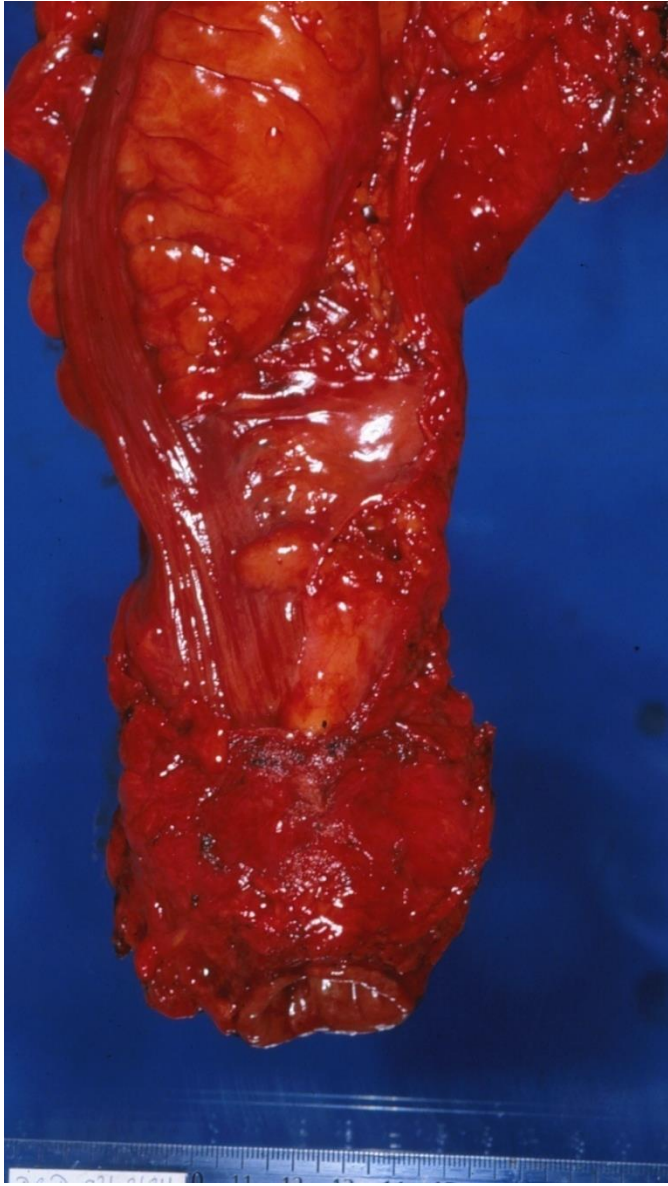
0: résection chirurgicale ou endoscopique

+ : radio-chimiothérapie pré-op

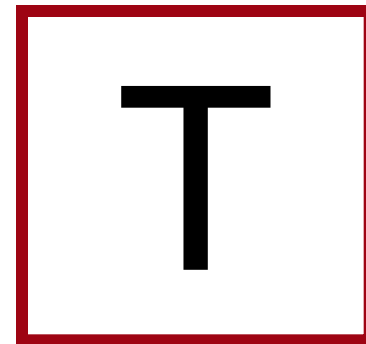
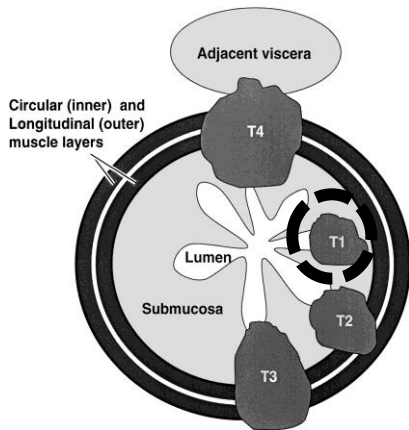
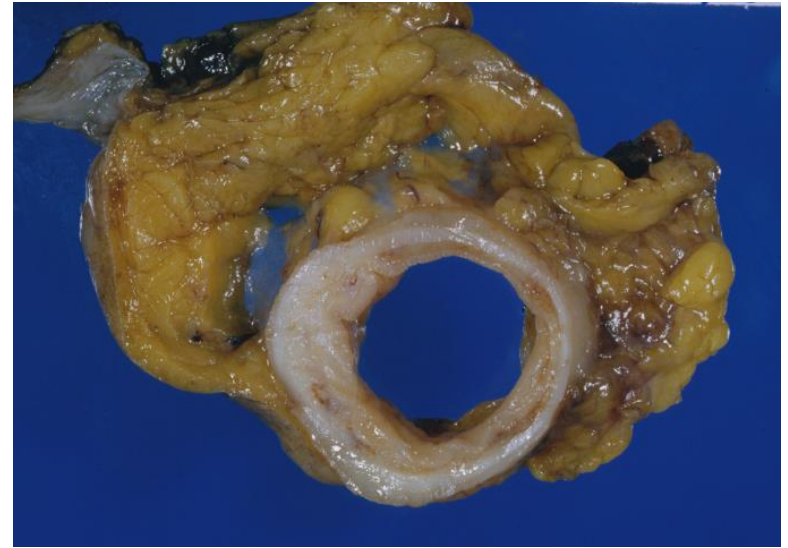
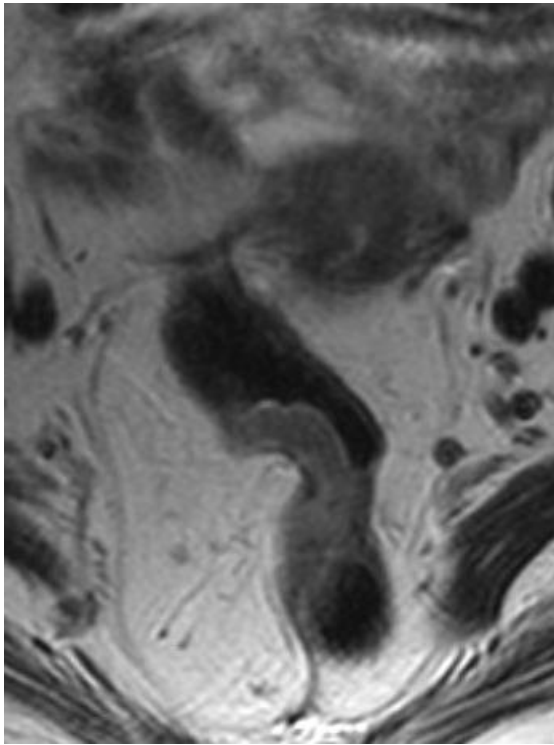
* cT3 haut rectum avec CRM < 5 mm à irradier

IRM à faire

- Au moins
 - dans tous les uT3
 - Dans tous les N +
 - Néoplasies à plus de 10 cm

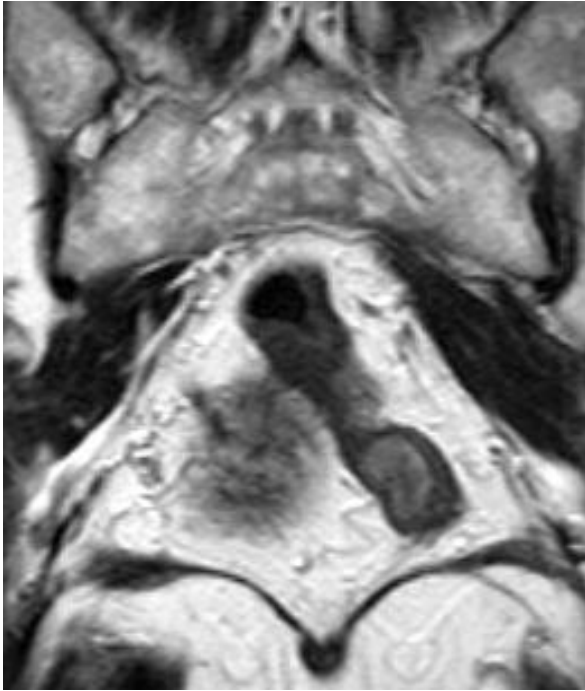


ypT3N0 R1



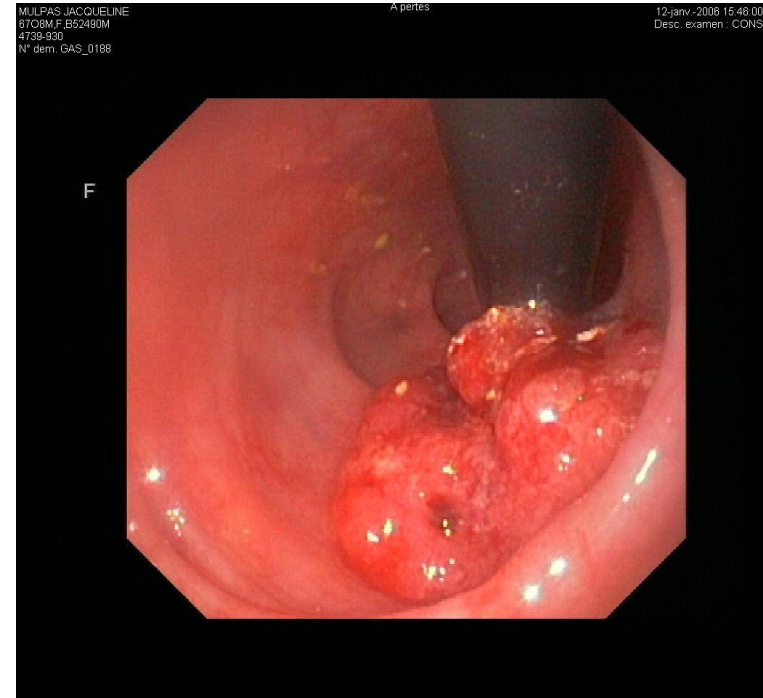
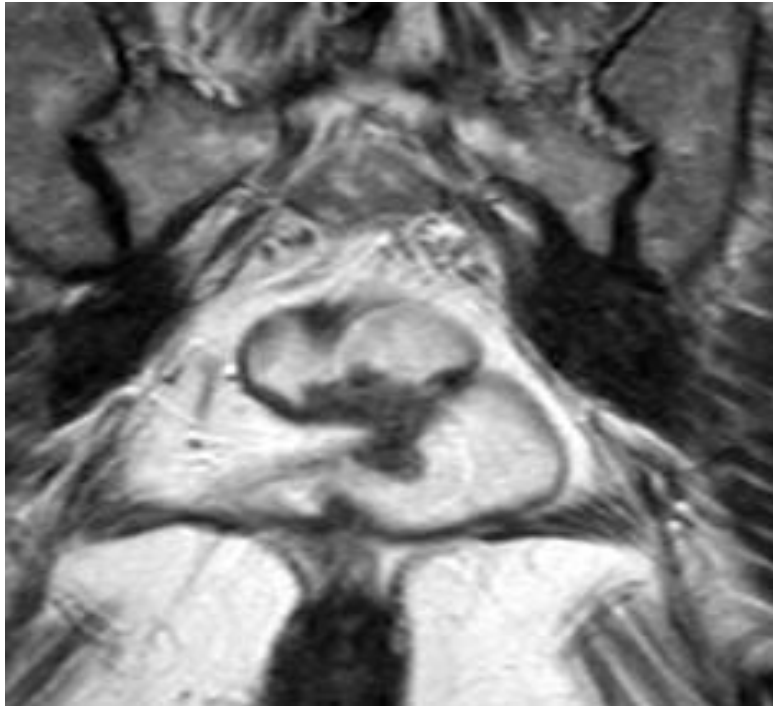
- Brown G et al. Radiology 1999;211:215-222

T1

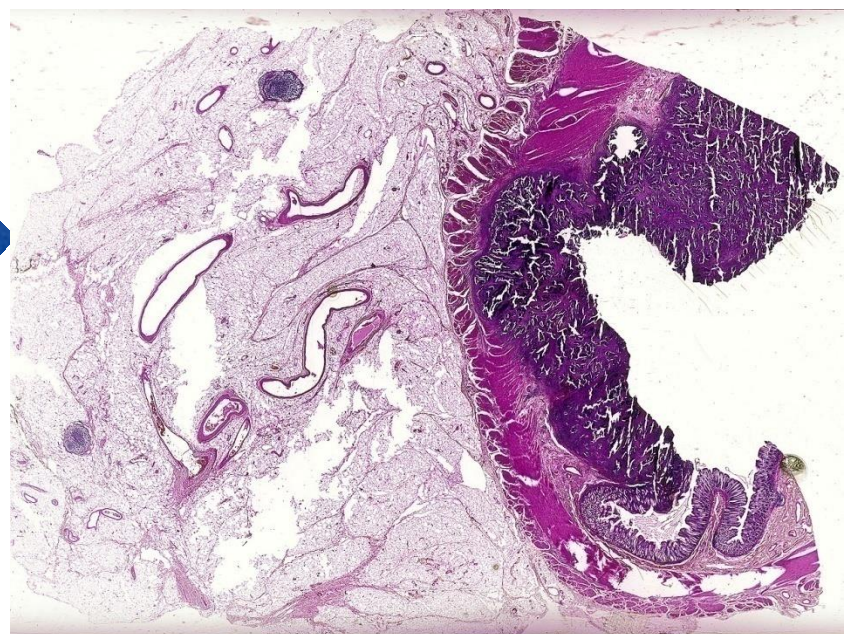
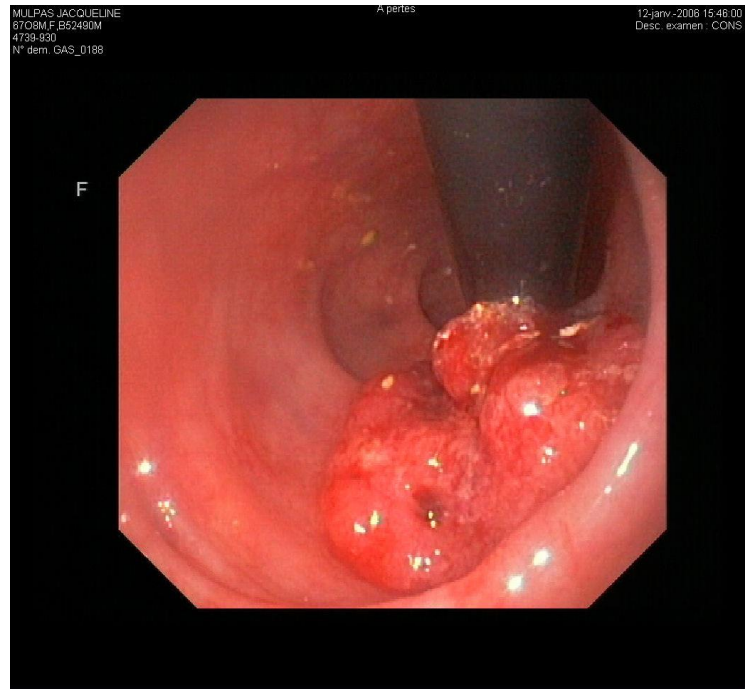
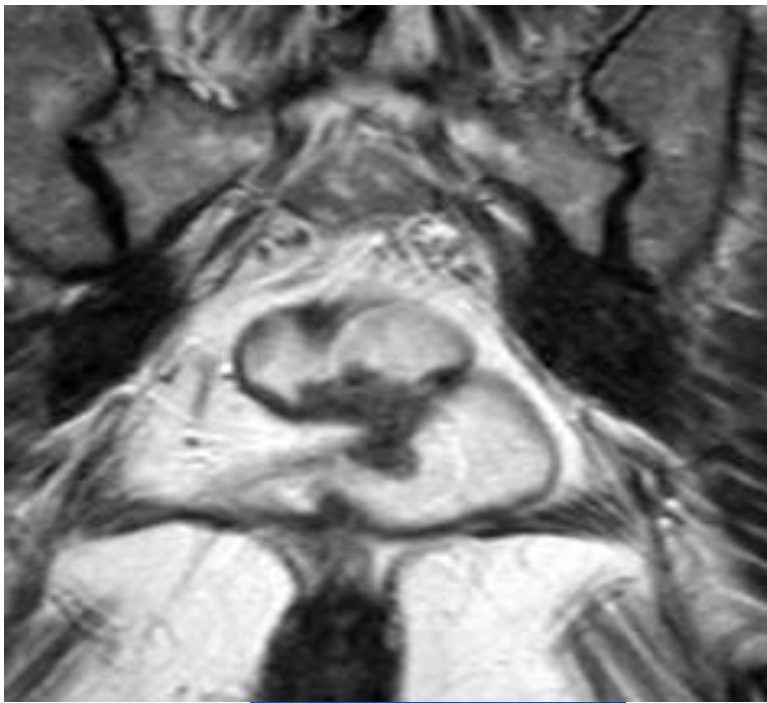


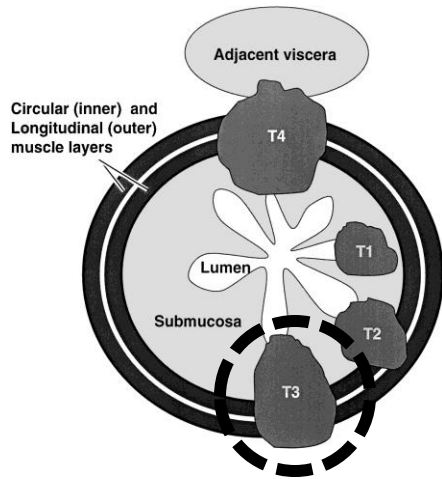
T1: The tumour is located in the submucosa, appears with a lower signal intensity than the submucosa and does not extend into the circular muscle layer.

T2



T2: The tumour is located in the submucosa and in the muscular layer. There is a disappearance of the interface between the submucosa and the muscularis propria. The lesion appears with an intermediate signal intensity (higher signal than muscle, lower signal than submucosa) within muscularis propria. The lesion does not extend into the perirectal fat (i.e a hypointense rim persists around the tumour).

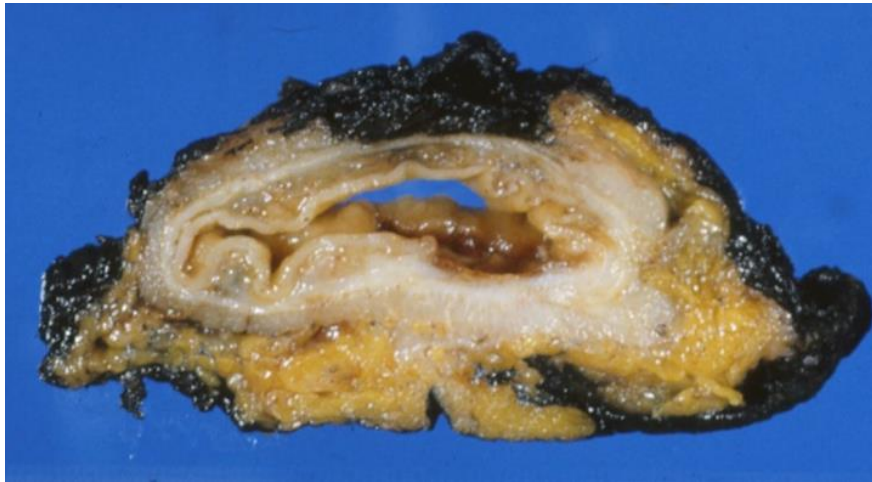




T3

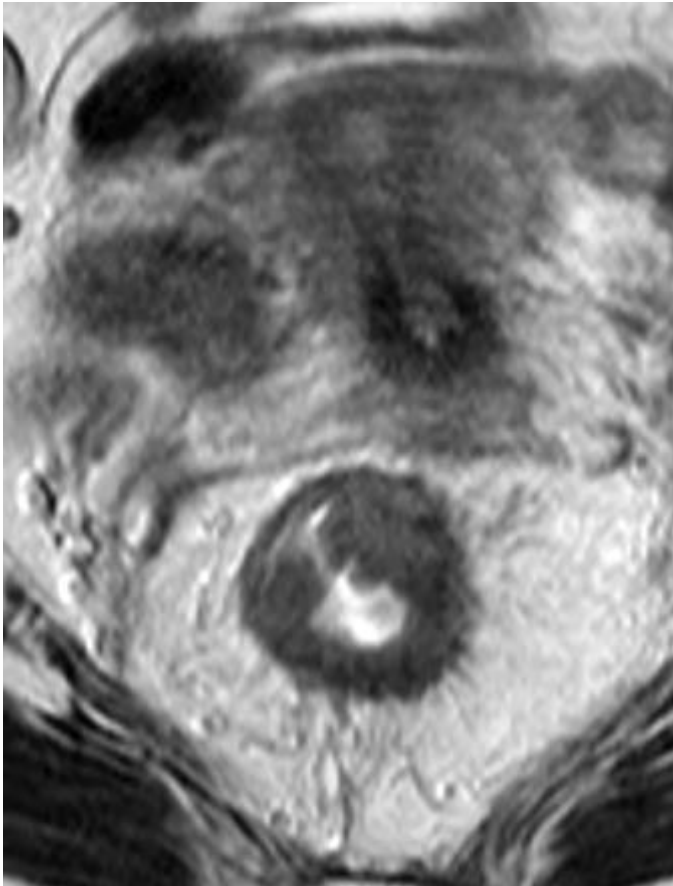


- Brown G et al. Radiology 1999;211:215-222



T3: The tumour invades the mesorectal fat with the loss of the interface between the muscular propria and the perirectal fat tissue. The tumour bulges or has nodular projections beyond the outer muscle layer. Spiculations are more indicative of fibrodesmoplastic reaction.

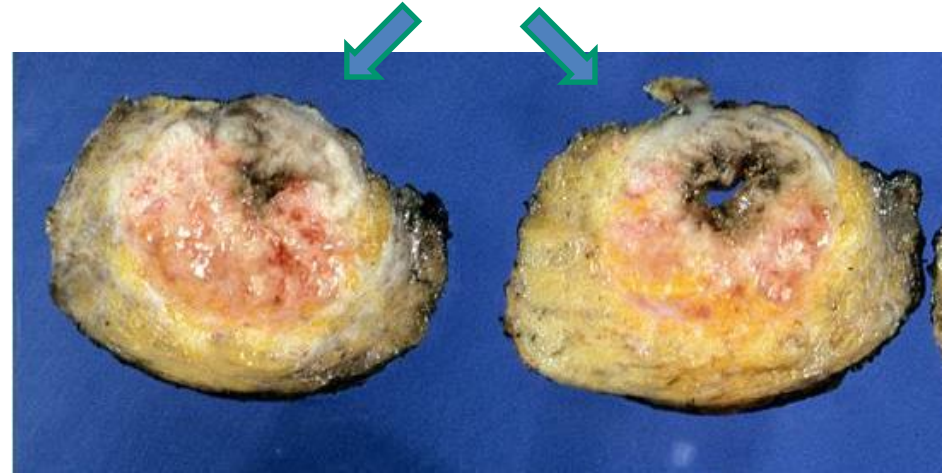
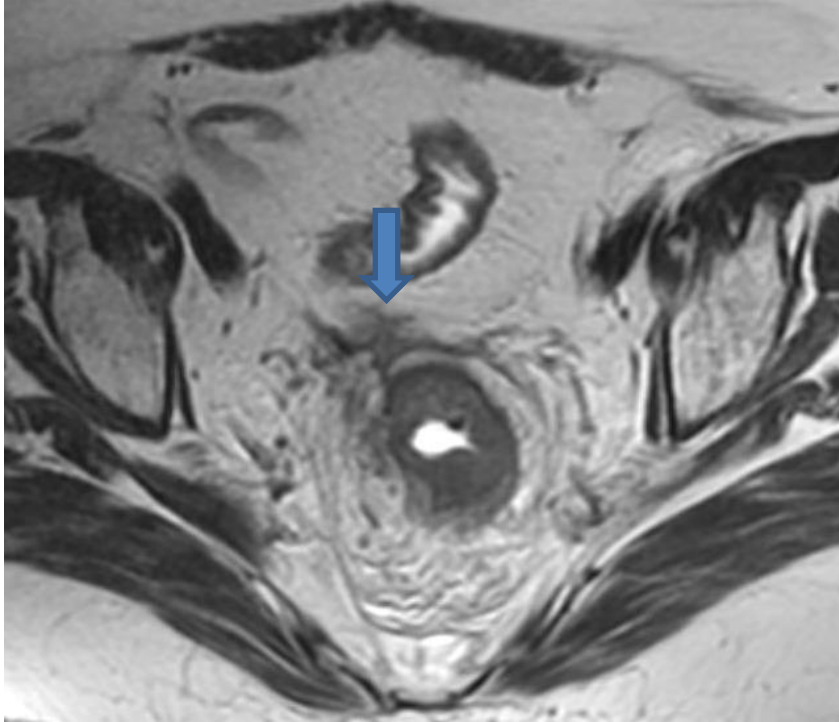
T2 or T 3 ??



ypT3N0 R0

CRM 10 mm

Case 12



T4

T4: The tumour extends into adjacent organs (prostate, seminal vesicles,...) and /or perforates visceral peritoneum.

Grade T , CT & MRI

	EES	CT	MRI
Sensibilité	59 %	85 %	97 %
Spécificité	63 %	87 %	96 %
Fiabilité	60 %	86 %	94 %

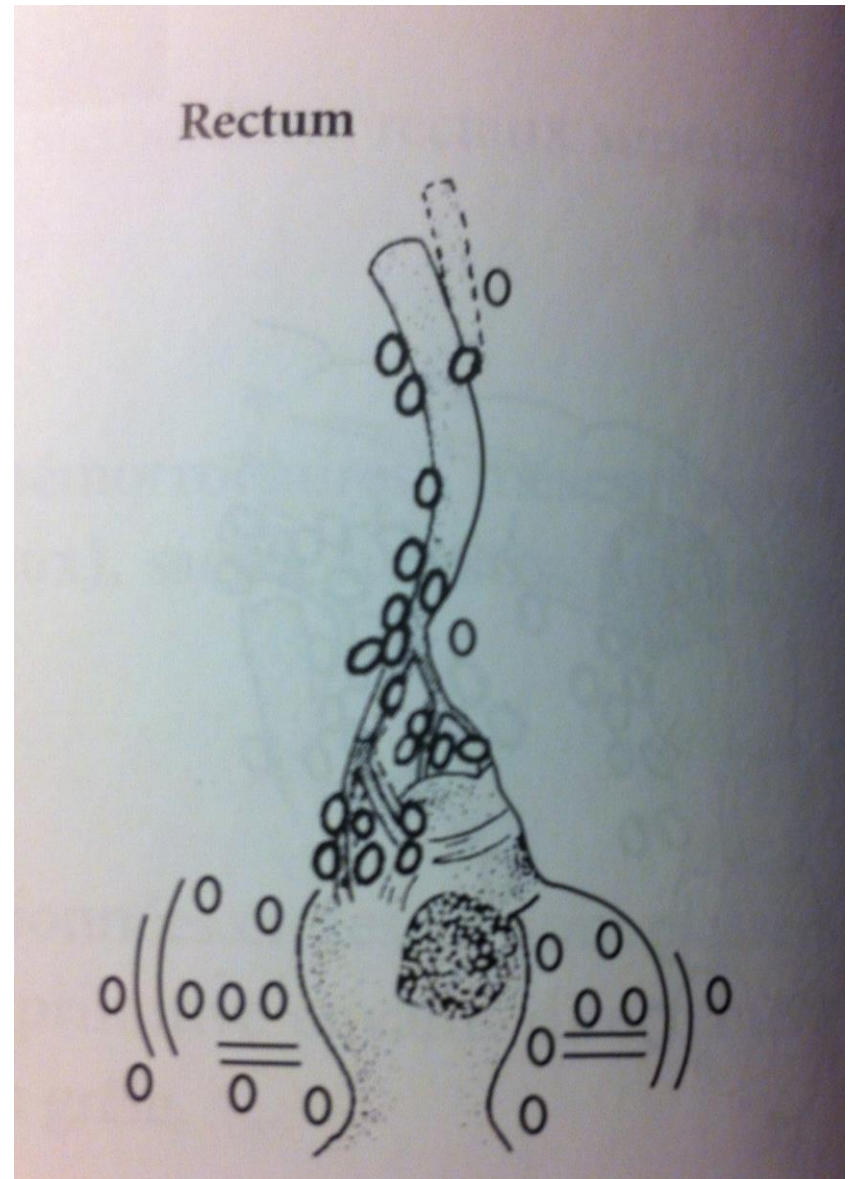
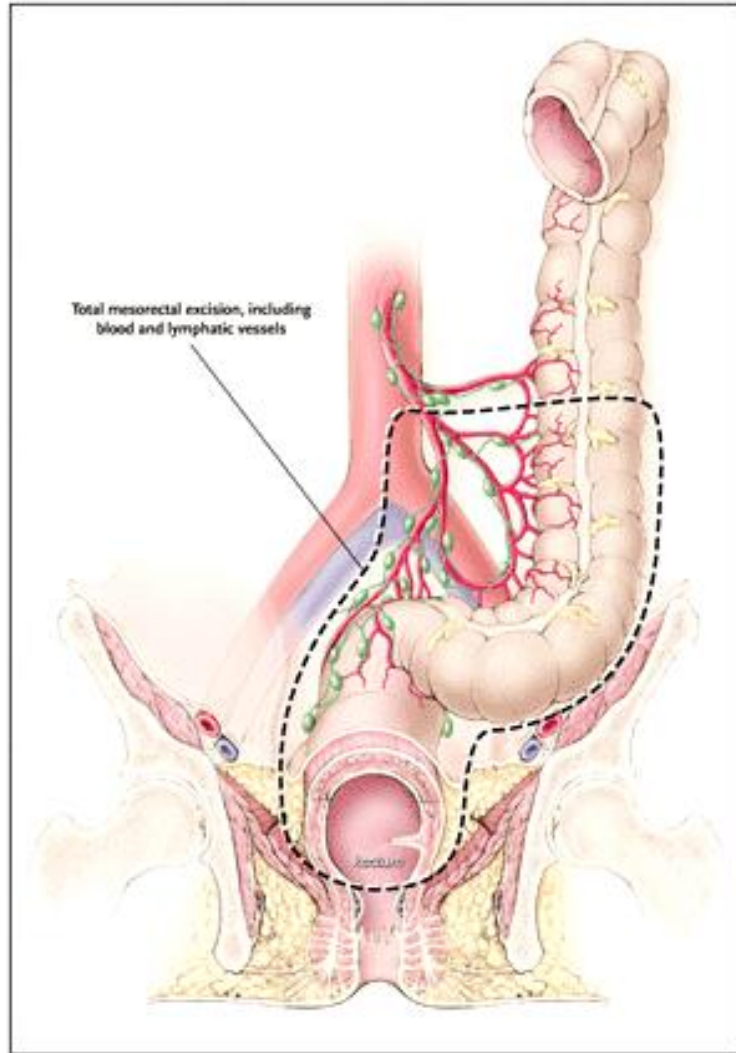
IRM, grade T et traitement +/-

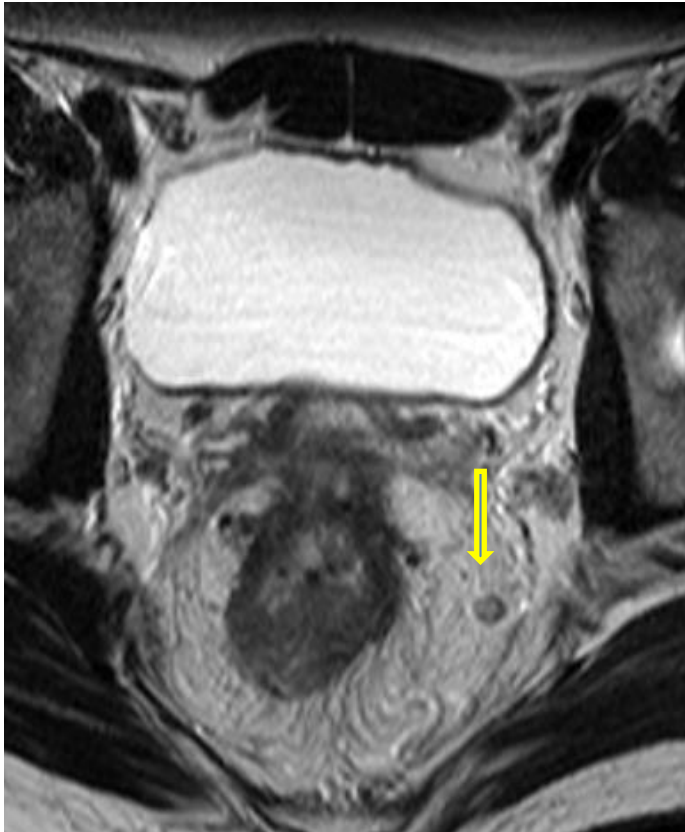
- T, IRM et absence d'irradiation:
 - Fiabilité : 71 à 91 %
- T, IRM et irradiation
 - Fiabilité : 47 à 54 %

Grade N, CT & MRI

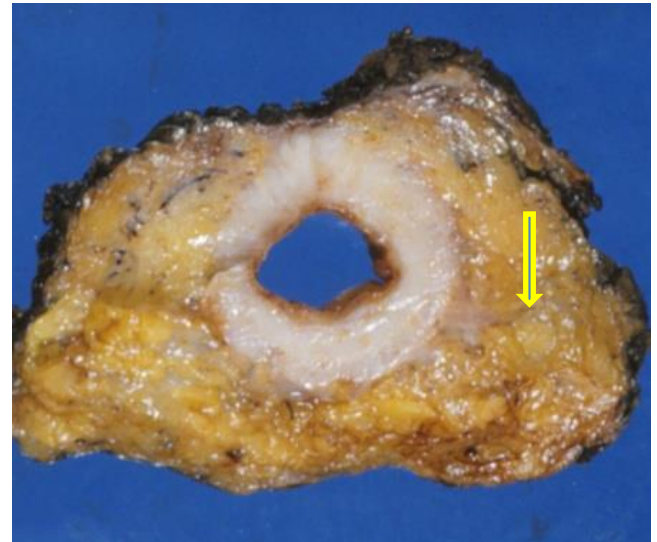
- Taille :
 - > 4 - 5 mm
- Aspect
 - irrégulier, hétérogène

	EES	CT	MRI
Sensibilité	67 %	55 %	66 %
Spécificité	78 %	74 %	76 %
Fiabilité	65 %	81 %	85 %





ypT3N2 marge 1 mm



Case 14

IRM, grade N et traitement +/-

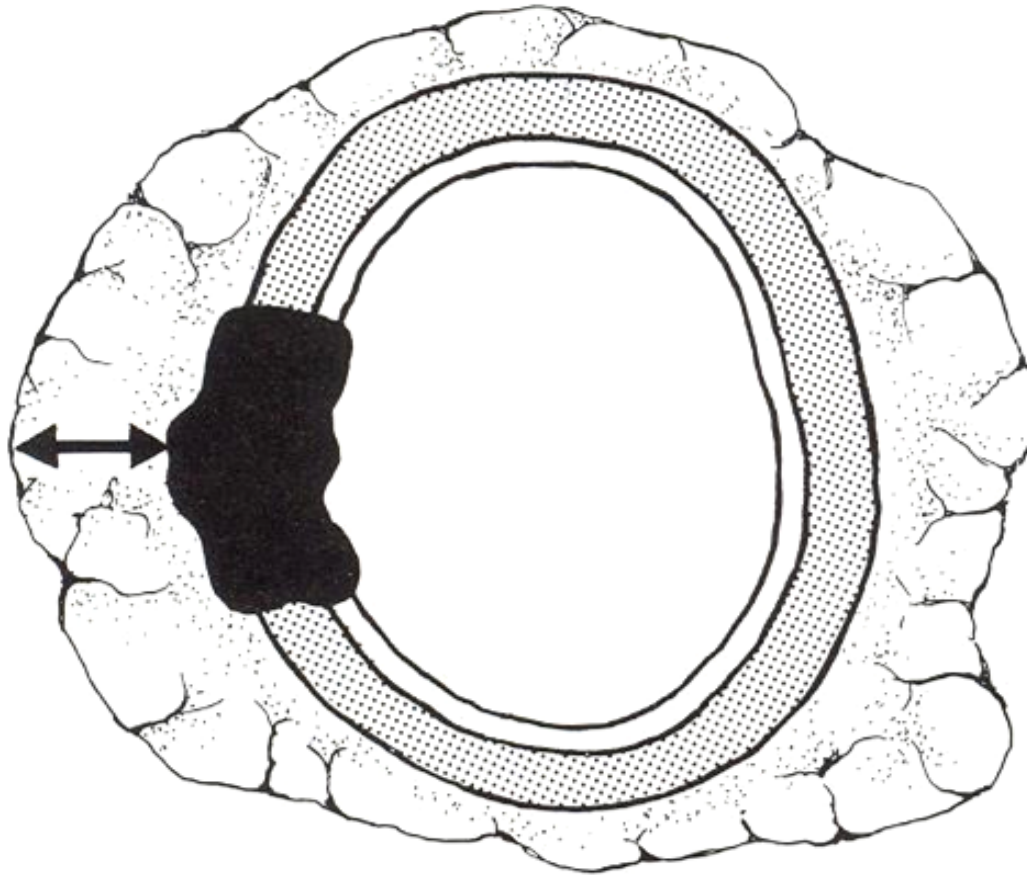
- N, IRM et absence d'irradiation:
 - Fiabilité : 43 à 85 %
- N, IRM et irradiation
 - Fiabilité : 64-68 %

Concordance entre CT, MRI, histologie et Grade N

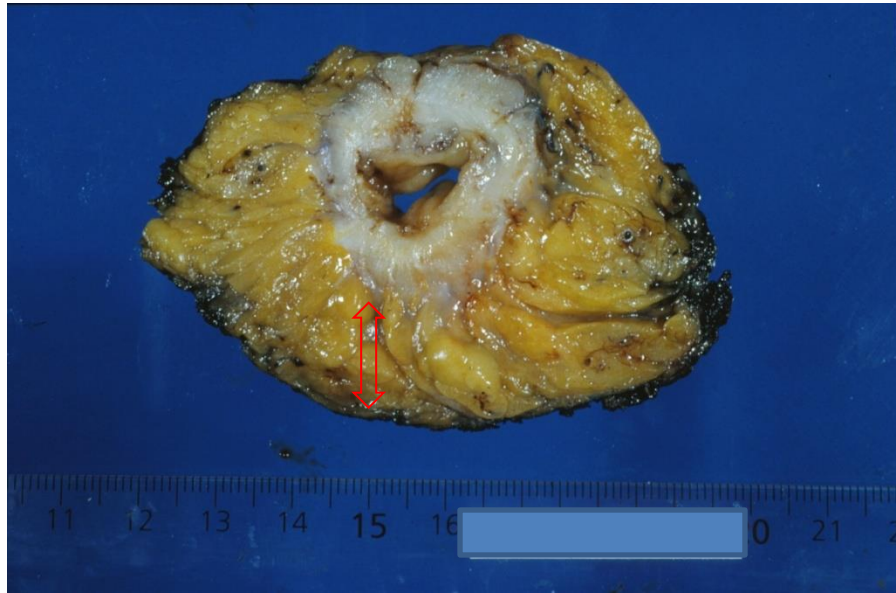
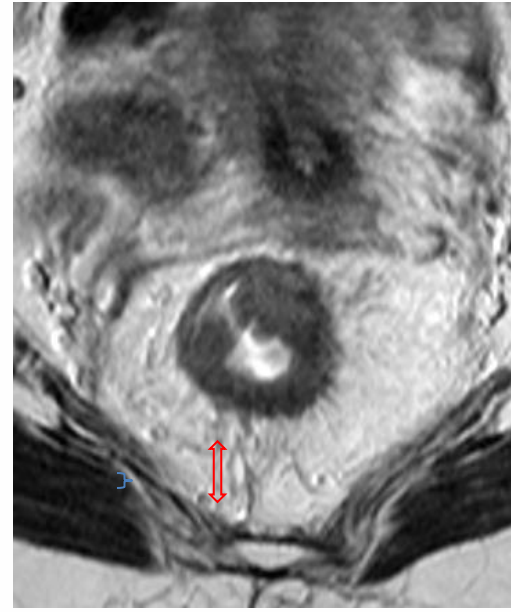
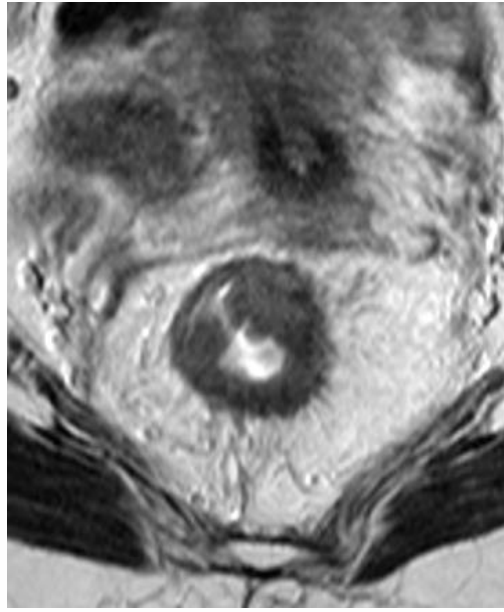
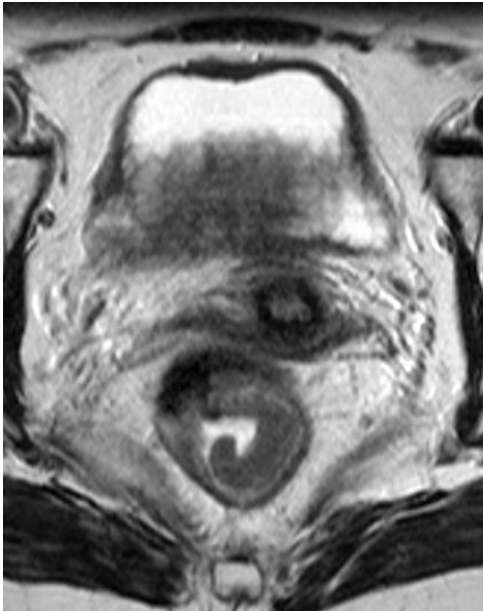
CT pre	IRM pre
61%	72%
CT post	IRM post
50%	55%

versus anapth.

CRM



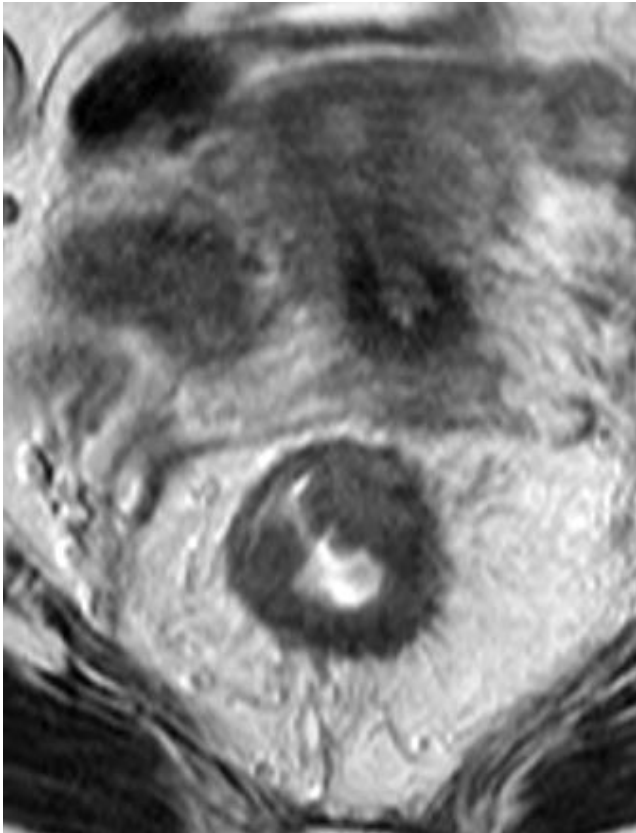
> 1mm



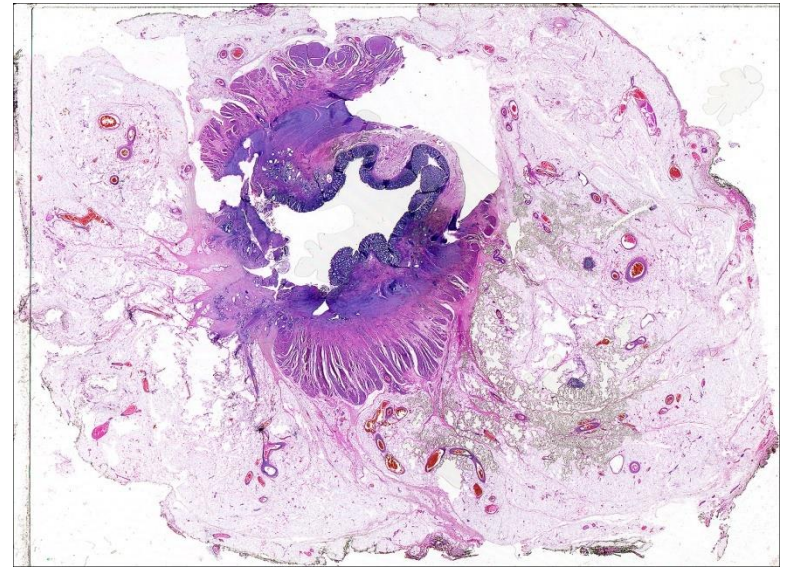
ypT3N0 R0

CRM 10 mm

Case 12



ypT3N0 R0



marge 10 mm

Case 12

CRM, CT & MRI

	EES	CT	MRI
Sensibilité			80 %
Spécificité			84 %
Fiabilité		45-86 %	92 %

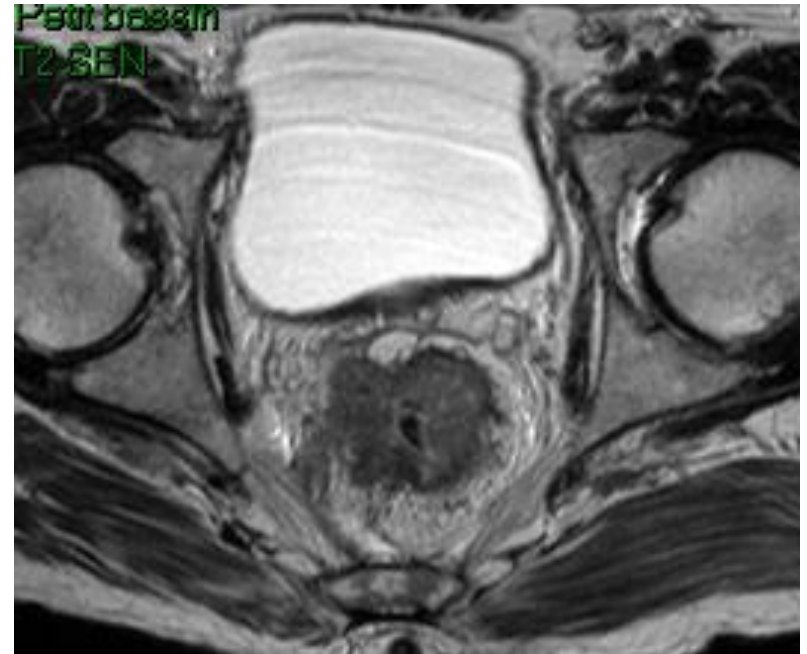
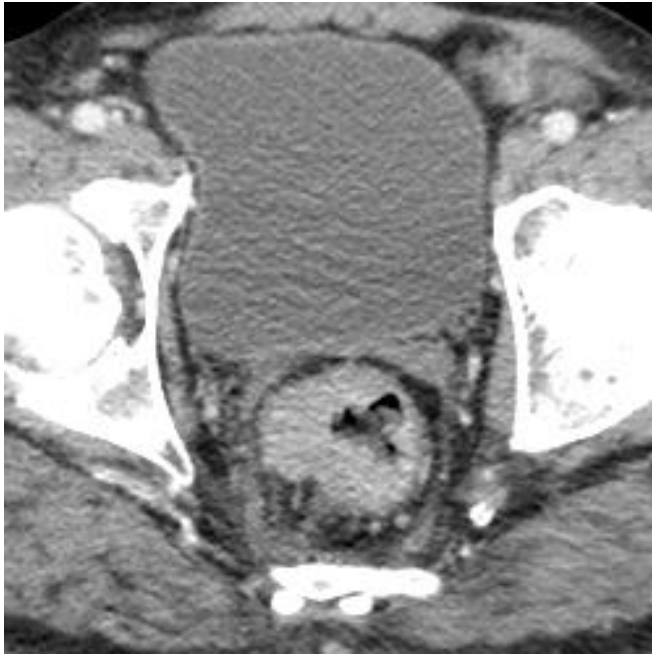
IRM, CRM et traitement +/-

CRM , IRM et absence d'irradiation:

Fiabilité : 92 à 95 %

CRM , IRM et irradiation

Fiabilité : 66 %



Discordances CT et IRM pour la CRM :

- CT = 2 mm
- IRM = 0 mm
- CRM finale: 0 mm

Régression tumorale et Histologie

Pathological features of rectal cancer after preoperative radiochemotherapy

O. Dworak¹, L. Keilholz², A. Hoffmann³

¹ Abteilung für Pathologie in der Chirurgischen Klinik, Erlangen, Germany

² Strahlentherapeutische Klinik, Erlangen, Germany

³ Chirurgische Klinik, Erlangen, Germany

Int J Colorect Dis (1997) 12: 19–23

Grade 1: no regression

Grade 1: dominant tumor mass with obvious fibrosis and/or vasculopathy,

Grade 2: dominantly fibrotic changes with few tumor cells or groups (easy to find),

Grade 3: very few (difficult to find microscopically) tumor cells in fibrotic tissue with or without mucous substance

Grade 4: no tumor cells, only fibrotic mass (total regression or response).

Régression tumorale et Imagerie

- ✓ tumeur inchangée ;
- ✓ réponse tumorale mais tumeur plus importante que la fibrose ;
- ✓ réponse tumorale marquée, et fibrose plus importante que la tumeur ;
- ✓ uniquement fibrose ;
- ✓ absence d'anomalie résiduelle en IRM.

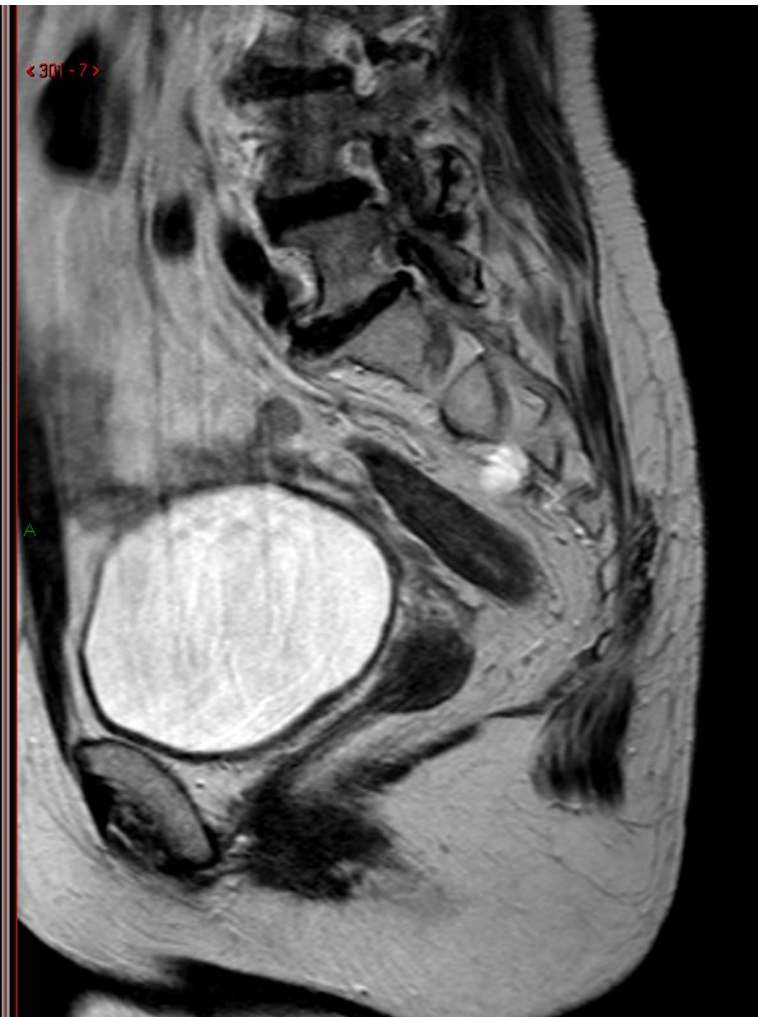
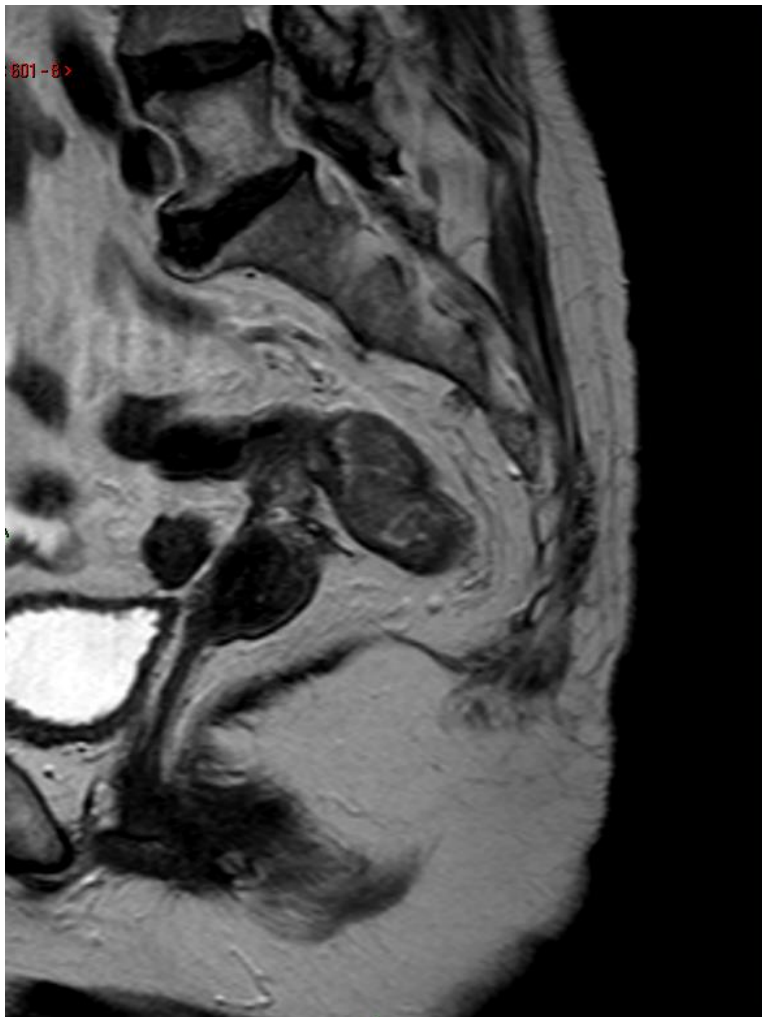
Régression tumorale simplifiée

Tableau 2 • Gradation simplifiée de l'estimation de la régression tumorale.

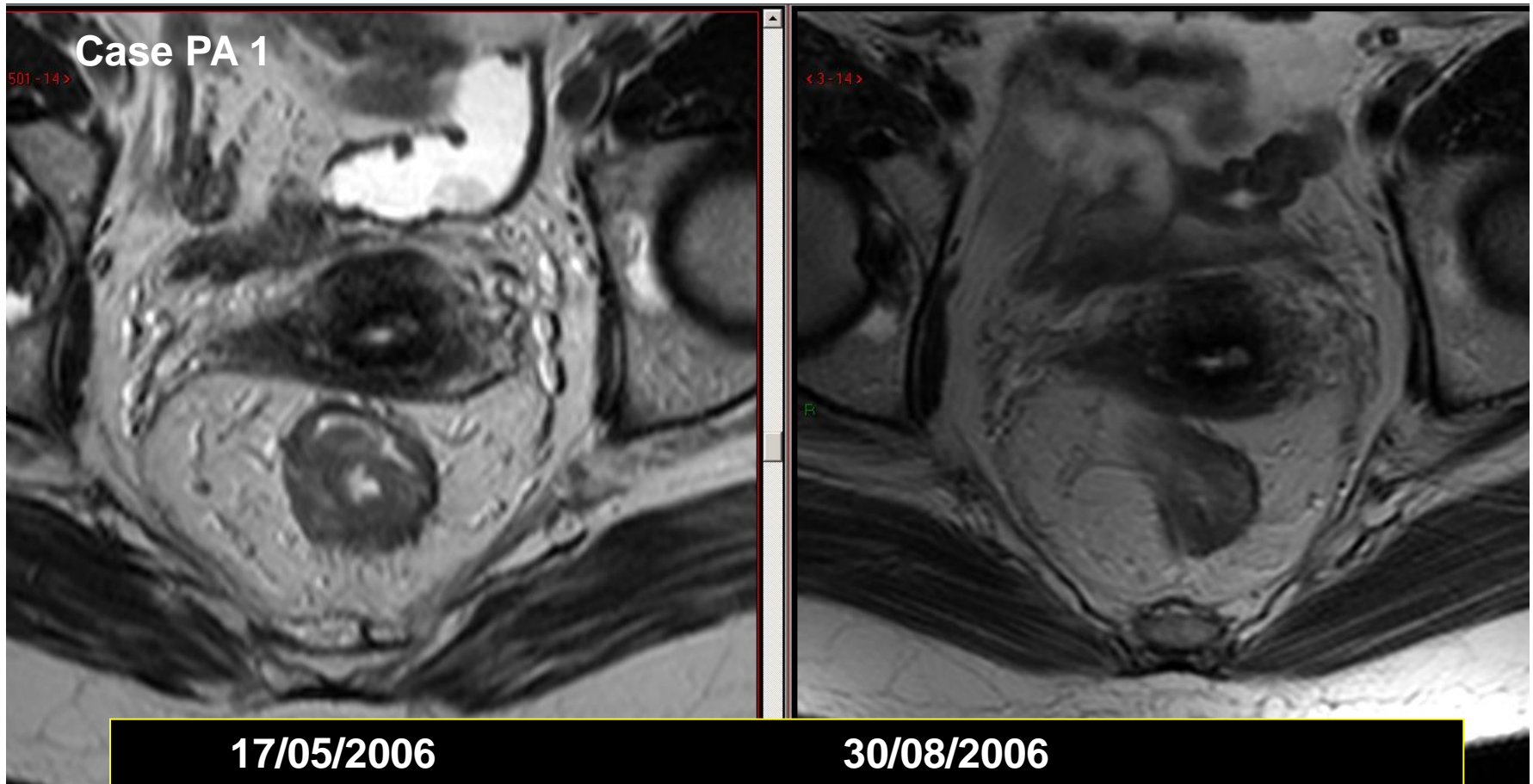
Grade	Dworak modifié	Grade IRM
0	Dworak grade 0 ou 1	Pas de régression
1	Dworak grade 2 ou 3	Régression intermédiaire
2	Dworak grade 4	Régression Complète

Gradation histologique de la regression, adaptée de Dworak (12).

Gradation par IRM de la régression tumorale, simplifiée au départ de Allen (16).



Régression du volume tumoral



Initial MRI :

cT3 N+ , CRM 1.8 mm

Post chemo-radio MRI

cT1 N+ CRM 5.5 mm

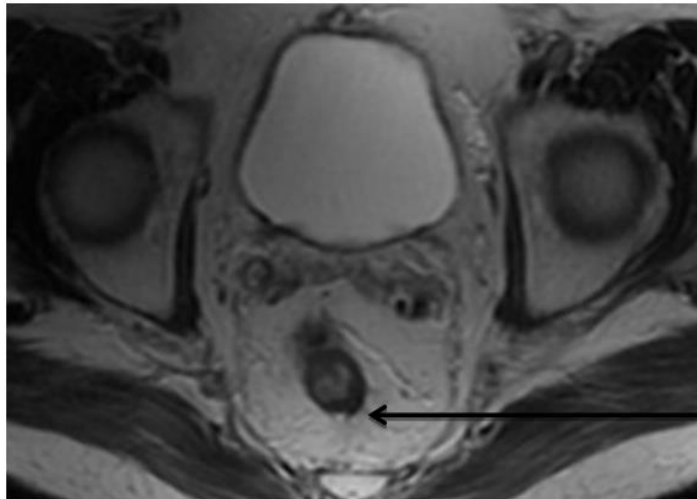
Dworak MRI : 1 Dworak Histo : 1

Tableau 2 • Gradation simplifiée de l'estimation de la régression tumorale.

Grade	Dworak modifié	Grade IRM
0	Dworak grade 0 ou 1	Pas de régression
1	Dworak grade 2 ou 3	Régression intermédiaire
2	Dworak grade 4	Régression Complète

Gradation histologique de la régression, adaptée de Dworak (12).

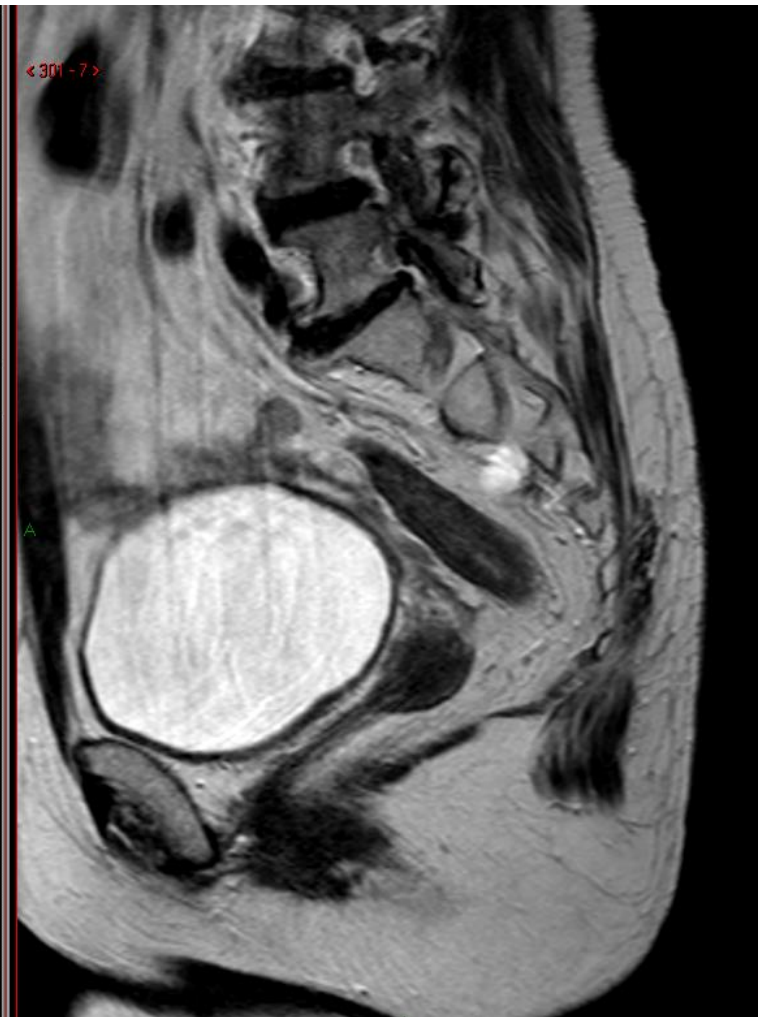
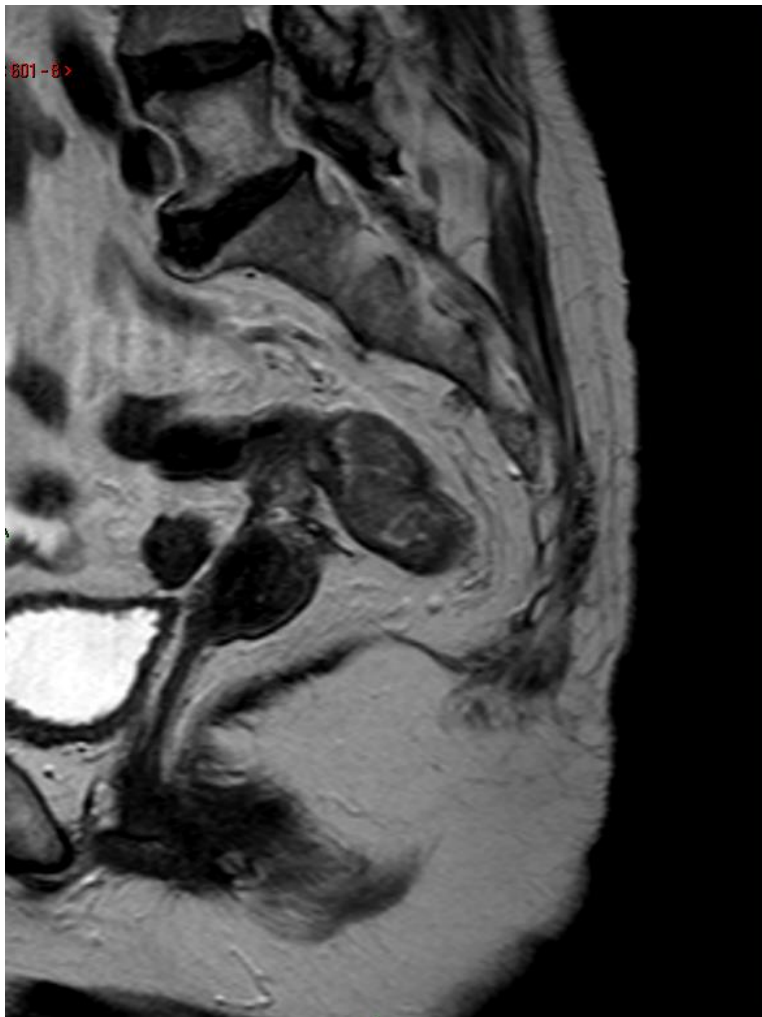
Gradation par IRM de la régression tumorale, simplifiée au départ de Allen (16).



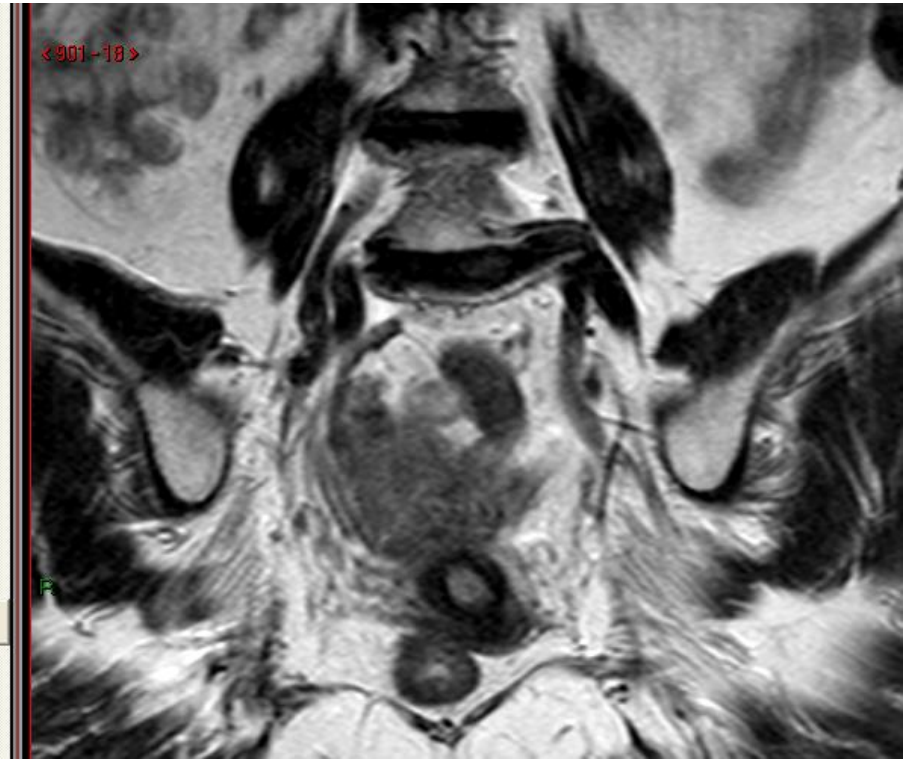
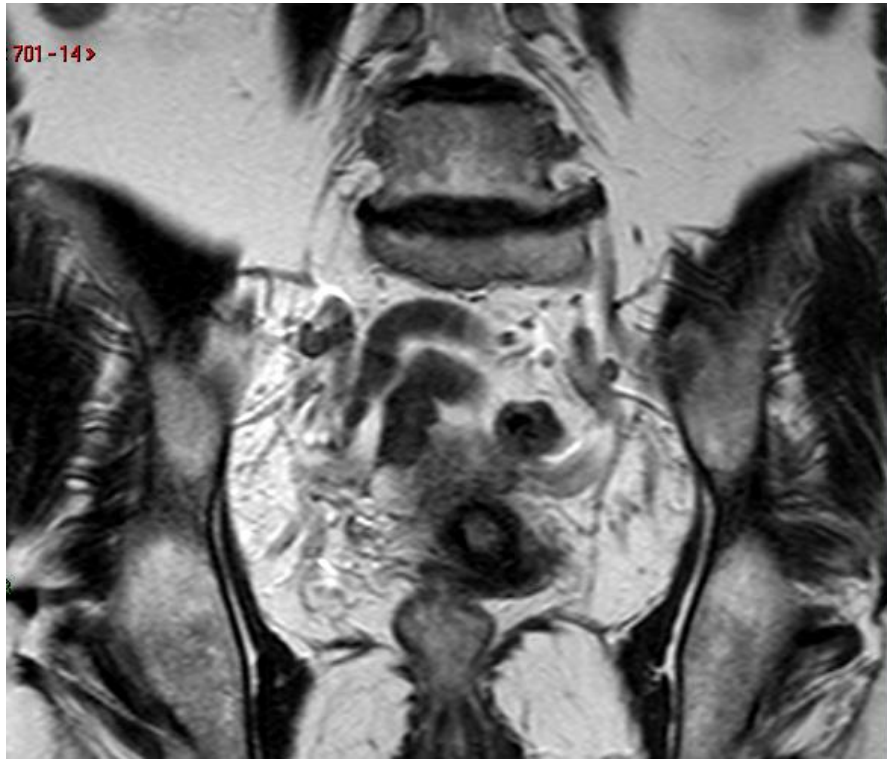
MRI POST R/ :
decrease of parietal thickening
(T2N0)
Regression **Grade 1**



Induration of
posterior rectal wall.
ypTONx
Dworak 4 (grade 2 simplifié)



- Après radio-chimiothérapie:
 - Régression du stade T : 17 %



- Après radio-chimiothérapie:
 - Modification du stade N: 68 %



05/2010



10/2010

- Après radio-chimiothérapie:
 - Régression du stade T : 17 %
 - Modification du stade N: 68 %
 - Modification de la CRM: 17 %

Cancer du Rectum et imagerie

- IRM
 - CRM
 - Ganglions