

Kystes Bronchogéniques de l'adulte



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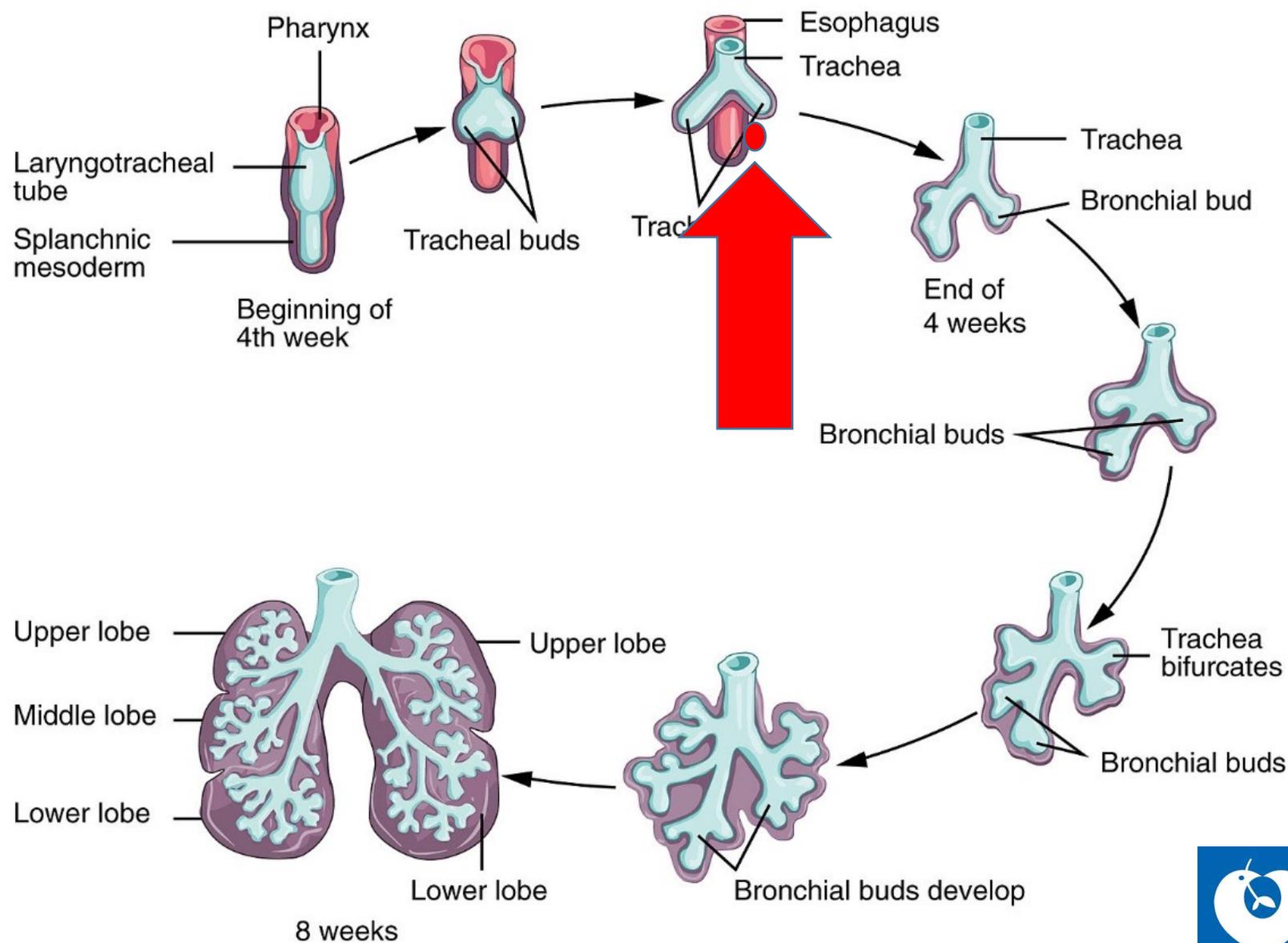
Huitième journée de pathologie de
l'enfant et de l'adulte.



Kystes bronchogéniques de l'adulte: Définition

- Malformations kystiques congénitales
 - Pathologie bénigne
 - Souvent asymptomatique de découverte fortuite
 - Anomalie de bourgeonnement ou de division de l'arbre trachéobronchique

Kystes Bronchogéniques de l'adulte: Embryologie



Kystes Bronchogéniques de l'adulte: localisation

- Mediastinale (~70%)
 - Absence de communication avec l'arbre trachébronchique.
 - Localisations les plus fréquentes :
 - Aire sous carinaire : ~50%
 - Aire paratrachéale : ~20%
 - Parois oropharyngée : ~15%
 - Aire retrocardiaque: ~10%
- Parenchymateuse (intrapulmonaire)
 - Typiquement périhialire , surtout dans les lobes inférieurs
- Autre:
 - Cervicale
 - cutanée
 - Péricardique, Intracardiaque
 - Diaphragmatique
 - retro péritonéale

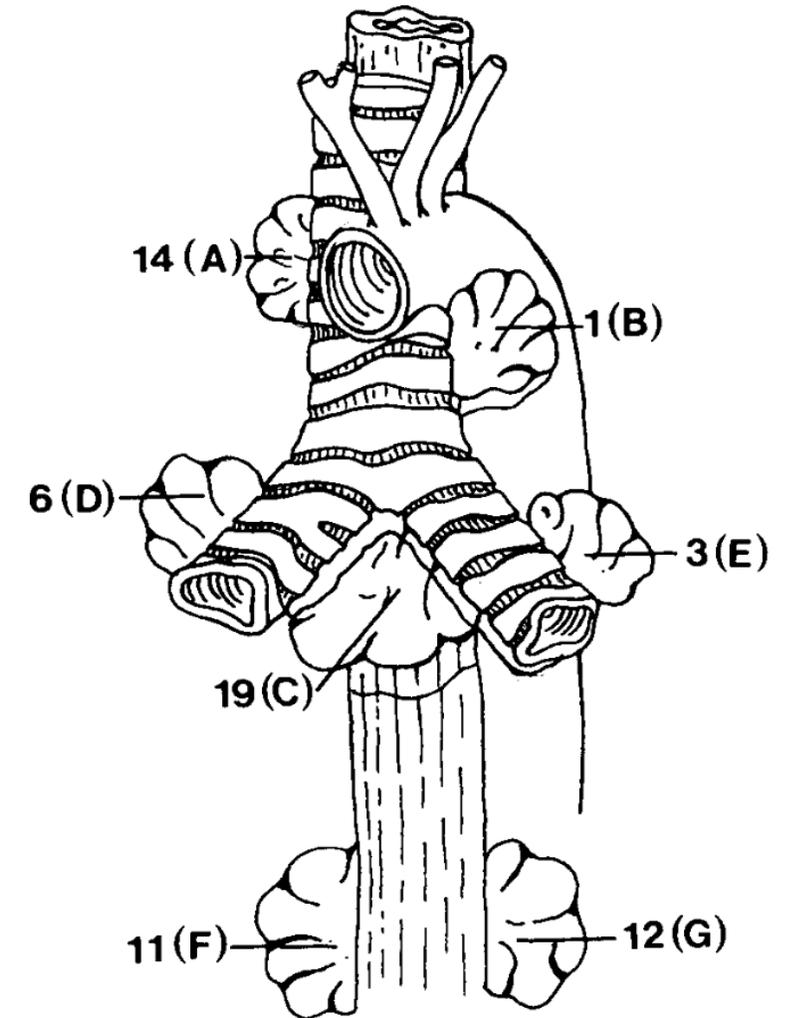


Fig 4. Anatomical location of mediastinal bronchogenic cysts according to Maier's classification [1]. (A = right paratracheal; B = left paratracheal; C = subcarinal; D = right hilar; E = left hilar; F = right paraesophageal; G = left paraesophageal.)

Kystes Bronchogéniques de l'adulte: localisation

Table 1 Demographic patient characteristics with primary mediastinal cysts divided into three groups according to location

Variables	Group I (N = 183)	Group II (N = 60)	Group III (N = 39)	F-value	P-value
Age (median, IQR)	55 (49–62)	41 (29–50)	41 (30–51)	48.201	<0.001
Sex (male/female)	74/109	30/30	19/20	0.974	0.406
Clinical symptom (%)	45 (24.6%)	24 (40.0%)	9 (23.1%)	0.466	0.706
Symptom developed during observation (%)	3 (1.6%)	8 (13.3%)	7 (17.9%)	7.304	<0.001
Cyst size (mean ± SD, range)	4.2 ± 3.0 (0.5–16.0)	4.4 ± 2.8 (0.5–22.0)	4.0 ± 1.6 (0.5–8.5)	0.253	0.859
Mean CT attenuation (mean ± SD, range)	23.8 ± 14.2 (0–52.0)	24.1 ± 16.3 (–8.0–60.0)	35.5 ± 20.1 (0–67.0)	5.356	0.001
Diagnosed as mediastinal cyst by CT (%)	98 (53.6%)	27 (45.0%)	18 (46.2%)	0.885	0.449
Pathology				4.730	0.003
Thymic cyst	118	1	1		
Bronchogenic cyst	48	41	31		
Pericardial cyst	13	12	1		
Esophageal cyst	1	3	3		
Pleural cyst	2	1	0		
Lymphangioma cyst	0	1	0		
Others	1	1	3		

Group I: Patients with anterior mediastinal cyst. Group II: Patients with middle mediastinal cyst. Group III: Patients with posterior mediastinal cyst.
IQR, interquartile range; SD, standard deviation

Kystes Bronchogéniques de l'adulte: localisation atypique

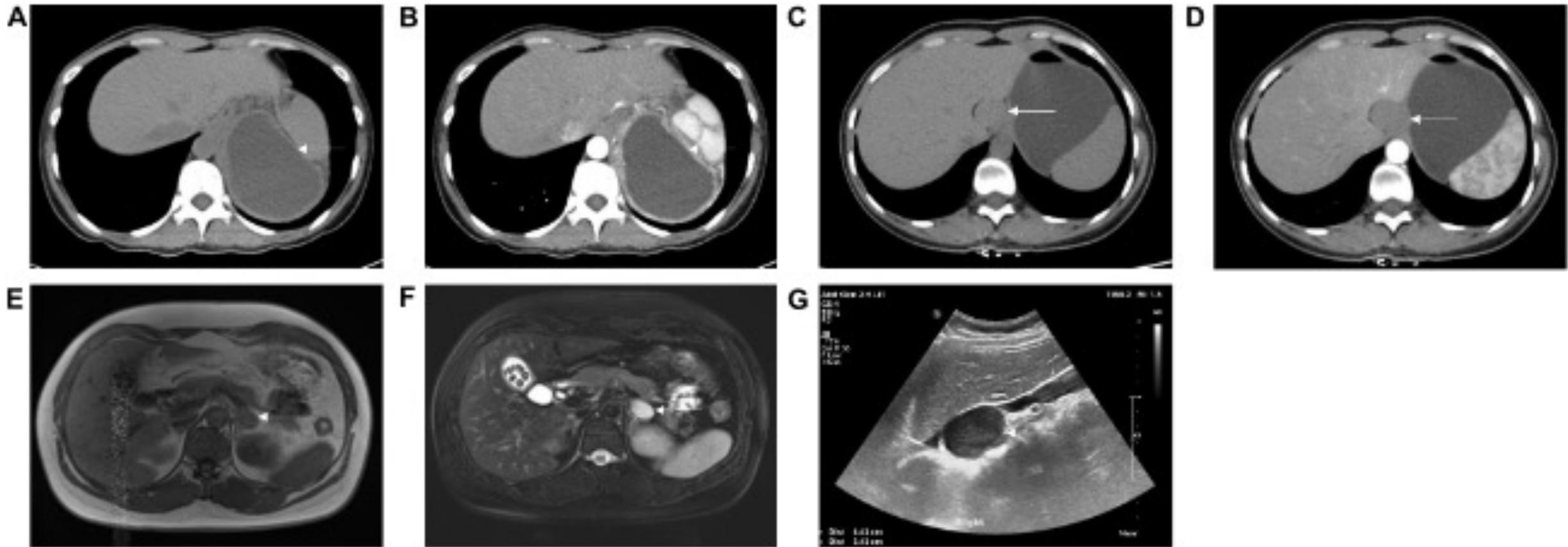
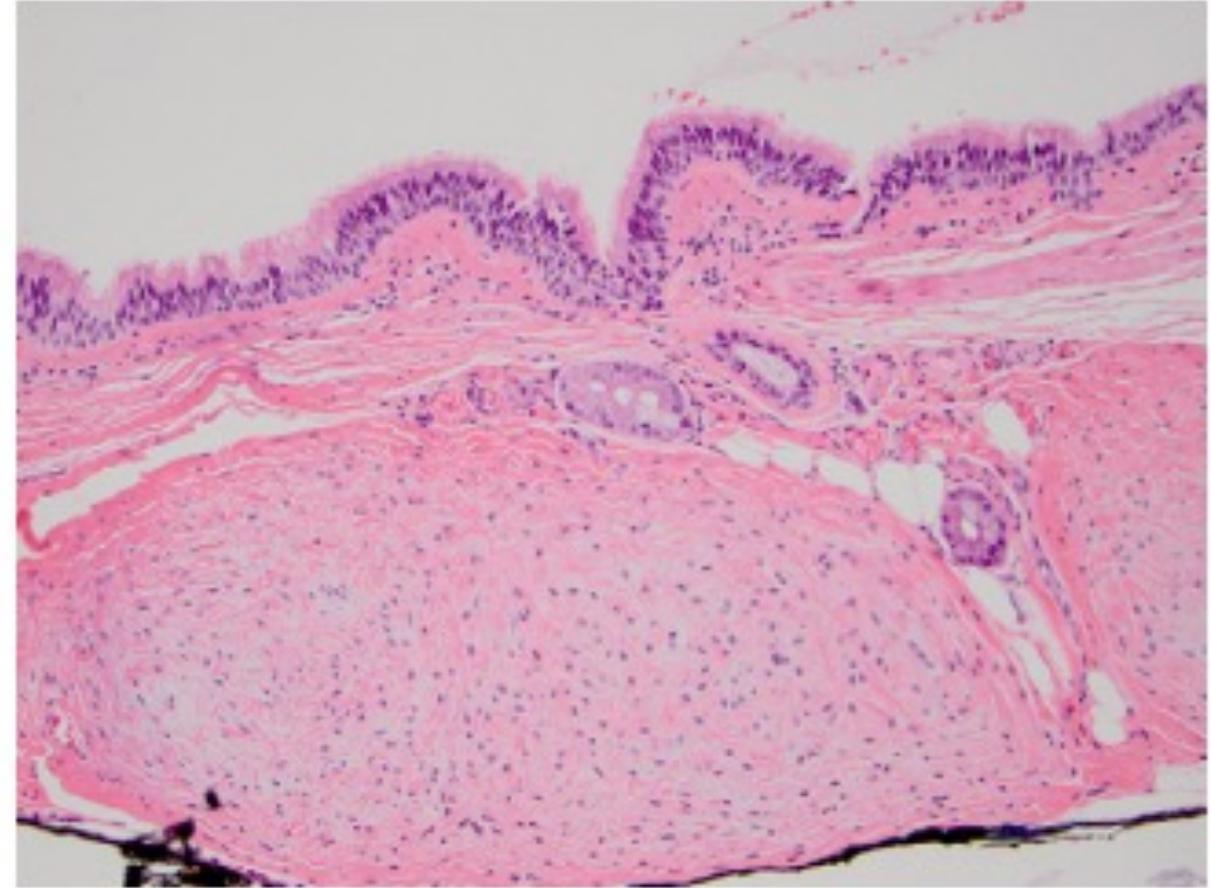


FIG. 2. Intraoperative photos of cystic intramedullary spinal bronchogenic cyst. **A:** Visualization of the intramedullary lesion with fibrous cyst wall after dura opening (*asterisk*). **B:** Ventral spinal cord (*arrow*) and cyst components (*asterisk*) after excision of smooth muscle fibers. **C:** Gray, gelatinous cyst contents (*asterisk*). **D:** Partial resection of intramedullary lesion.

Kystes Bronchogéniques de l'adulte: anatomopathologie

- kyste uniloculaire revêtu d'un **épithélium de type respiratoire bien différencié, sans atypie**. Le tissu conjonctif renferme de petites **glandes séro-muqueuses**, des faisceaux de **muscle lisse** et quelques lobules de **cartilage**.



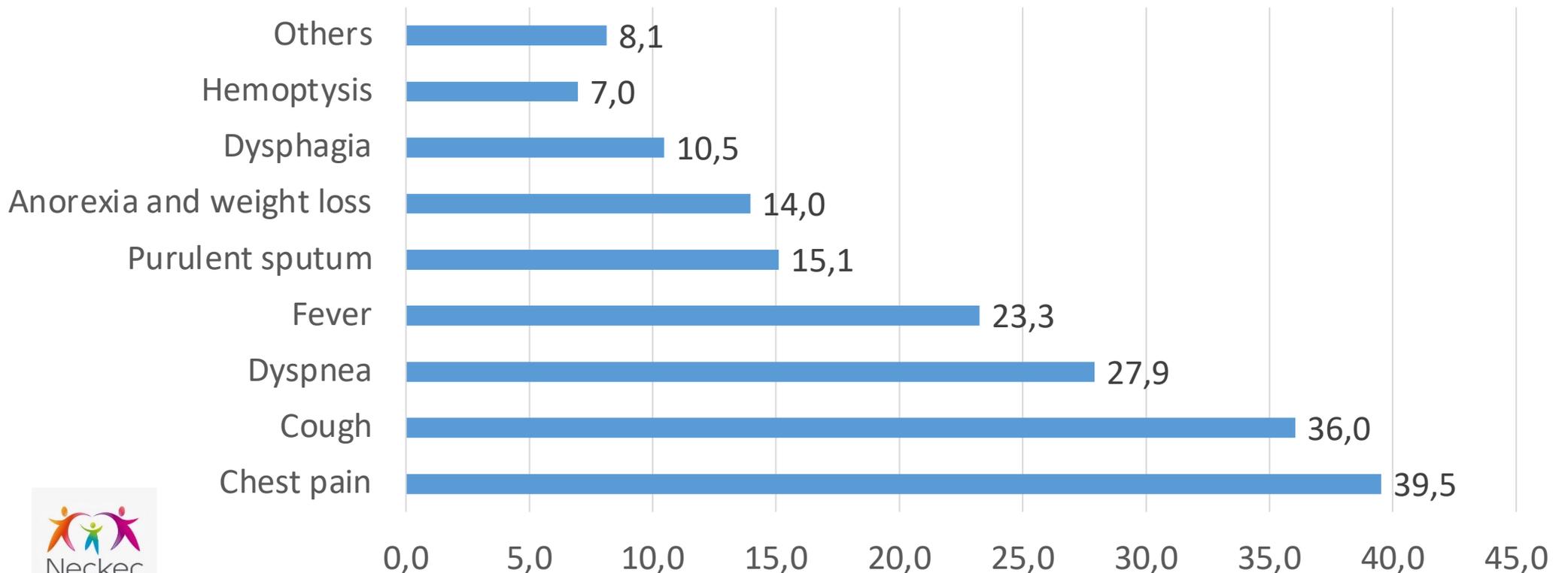
Kystes Bronchogéniques de l'adulte: Manifestations Cliniques et complications

62 / 86 (72.1%) Patients symptomatiques

Clinical Spectrum of Bronchogenic Cysts of the Mediastinum and Lung in the Adult

Régent St-Georges, MD, Jean Deslauriers, MD, André Duranceau, MD,
Rosaire Vaillancourt, MD, Claude Deschamps, MD, Gilles Beauchamp, MD,
Arthur Pagé, MD, and Jacques Brisson, MD *Ann Thorac Surg 1991;52:6-13)*

Clinical Symptoms

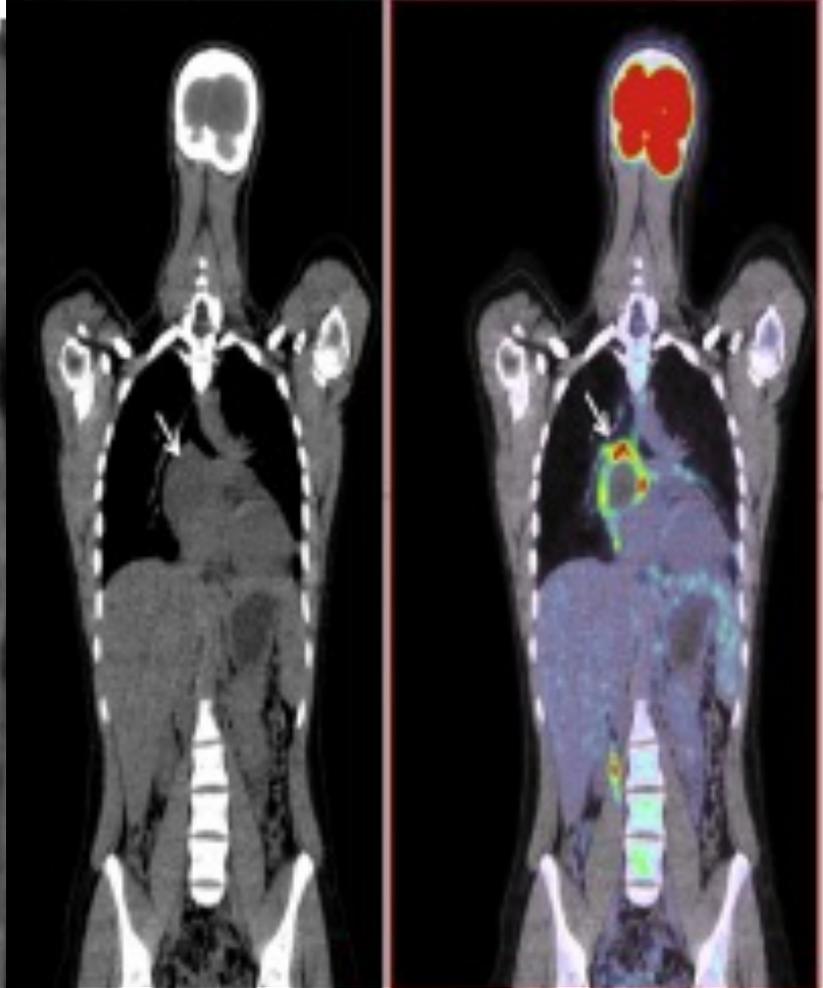
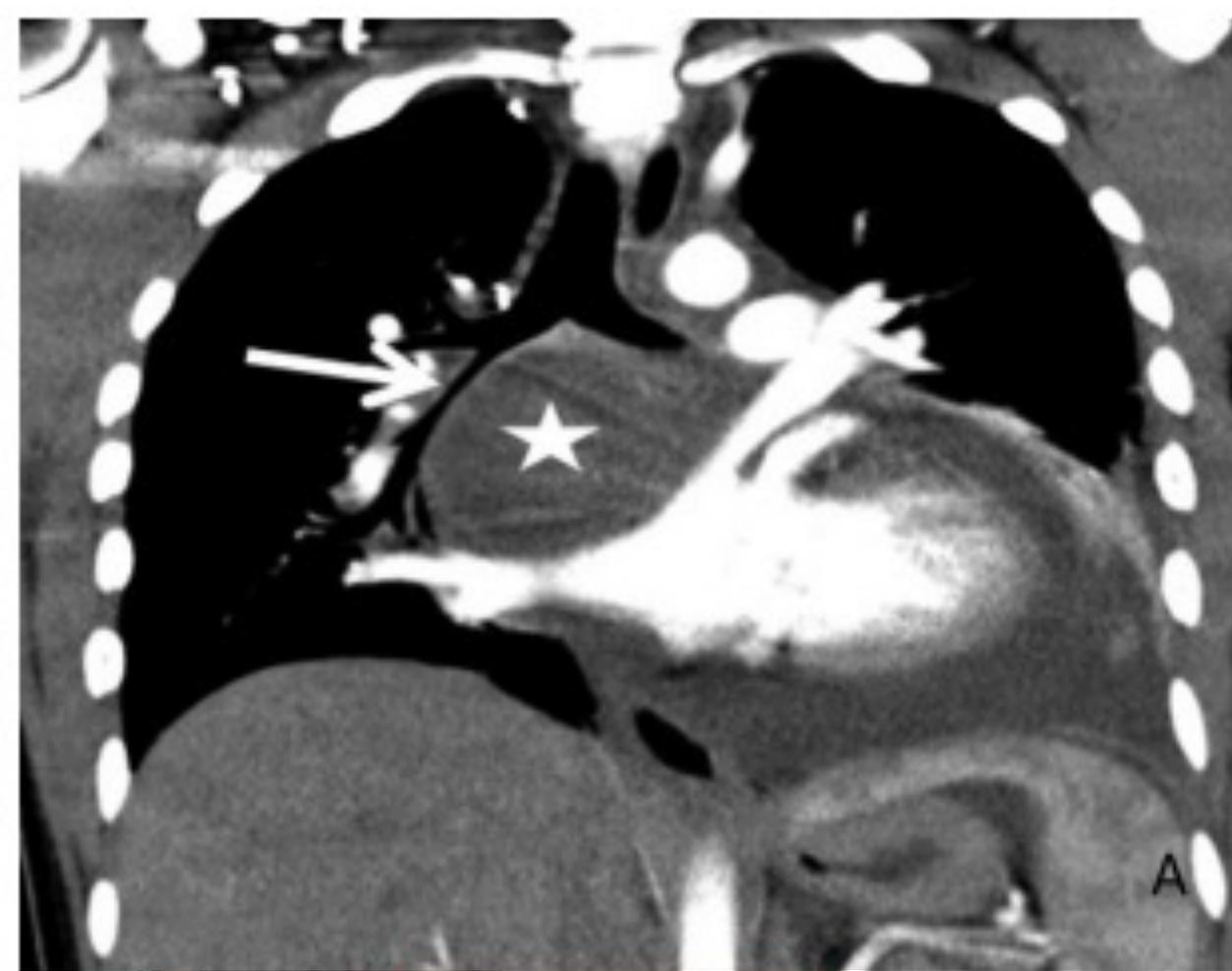


Kystes Bronchogéniques de l'adulte: Clinique

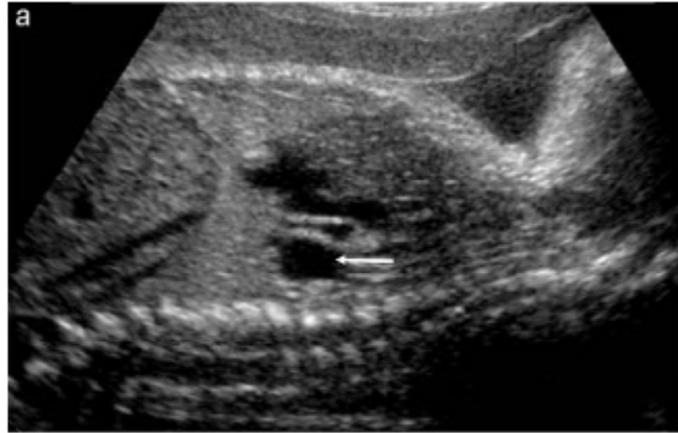
Table I. *Symptoms observed before and after the age of 15 years*

	<i>Symptoms in 24 infants and children (unique or prevalent)</i>	<i>Symptoms in 45 adults</i>	
		<i>Main</i>	<i>Associated</i>
Dyspnea	6 (25%)	2 (4%)	5 (11%)
Cough	4 (16%)	5 (11%)	1 (2%)
Pain	1 (4%)	9 (18%)	1 (2%)
Bronchopulmonary infection	4 (16%)	7 (14%)	1 (2%)
Dysphagia		4 (8%)	2 (4%)
Heartburn			2 (4%)
Respiratory distress	2 (8%)		
No symptoms	7 (29%)	18 (40%)	

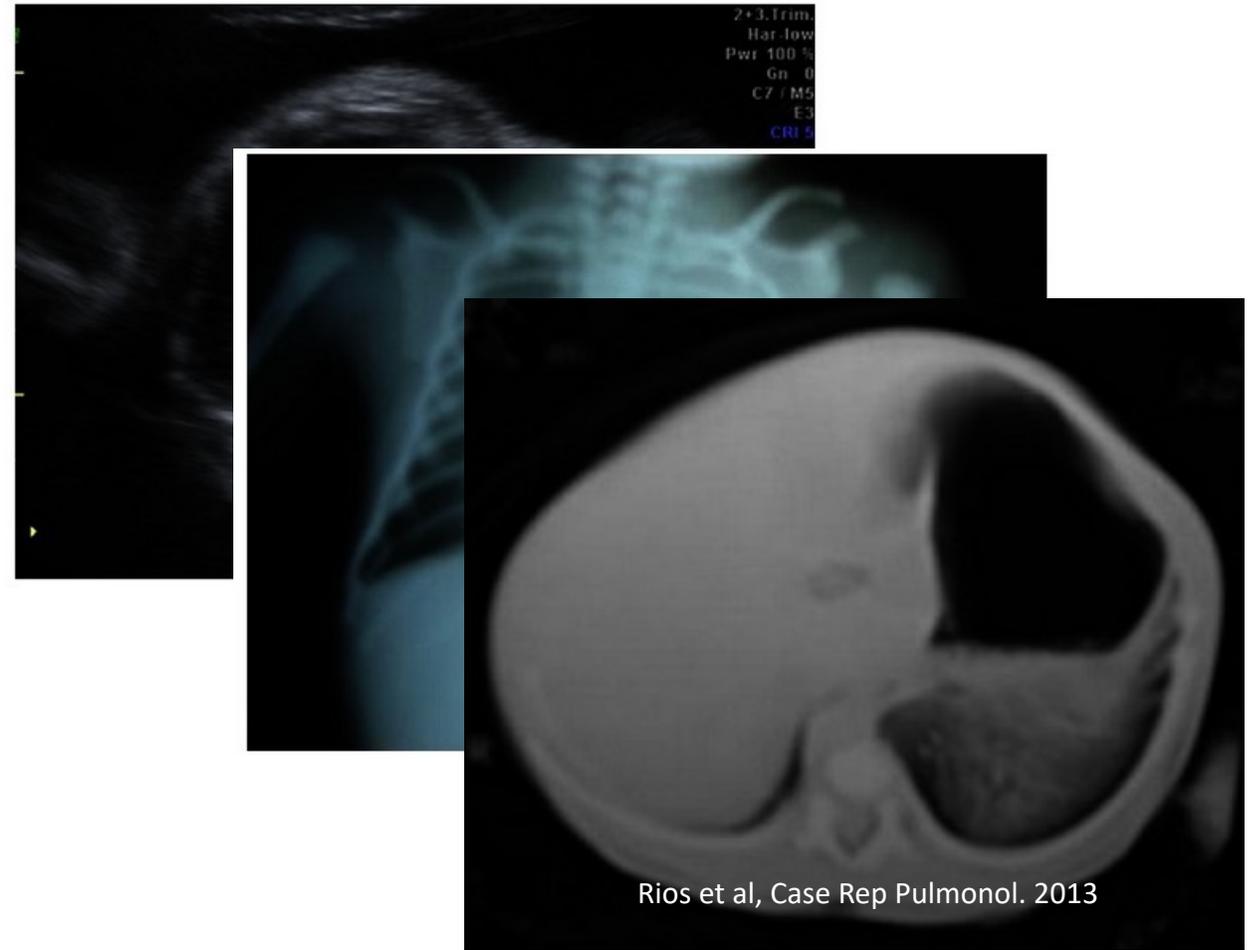
Kystes Bronchogéniques : complications cardiaques



Kystes Bronchogéniques : Diagnostic anténatal



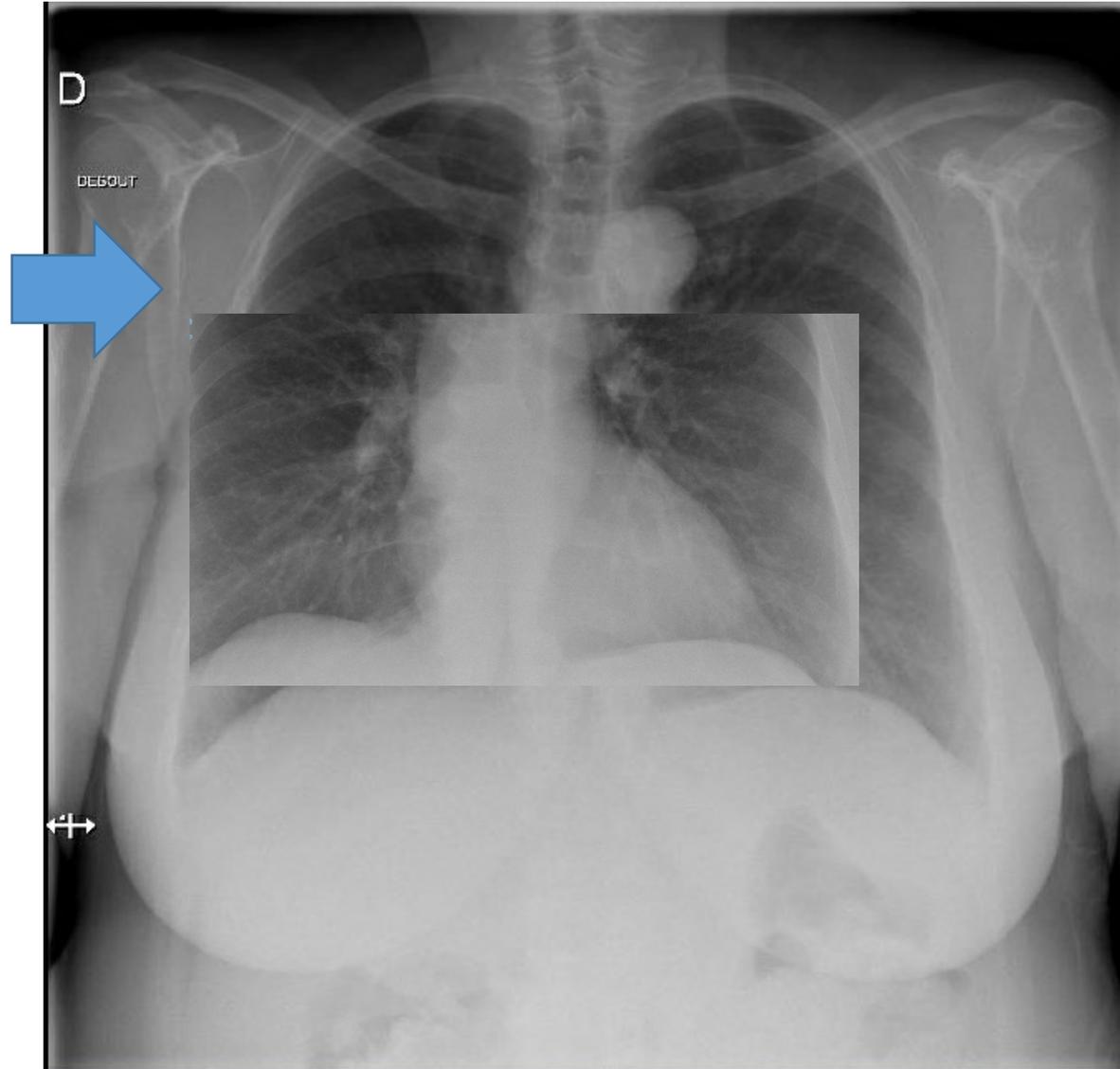
Hourrier et al, revue mal resp 2011



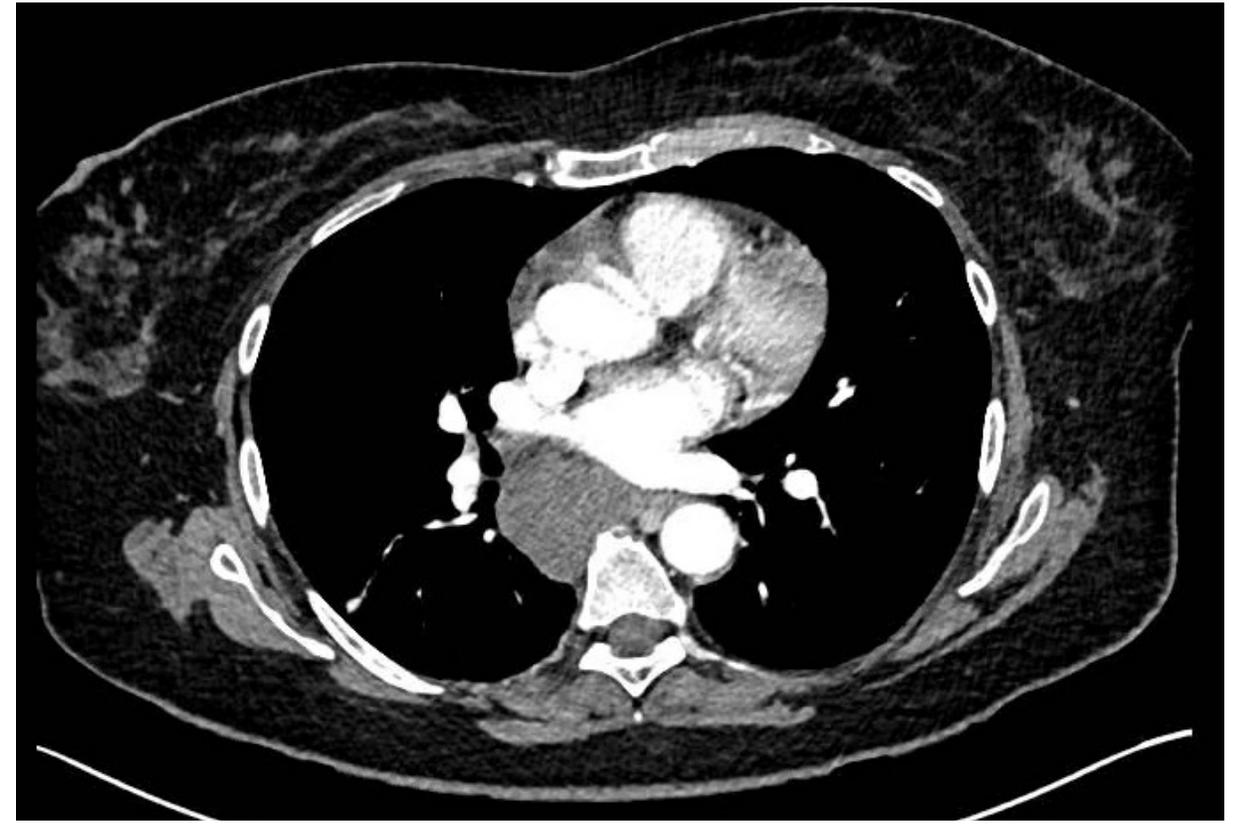
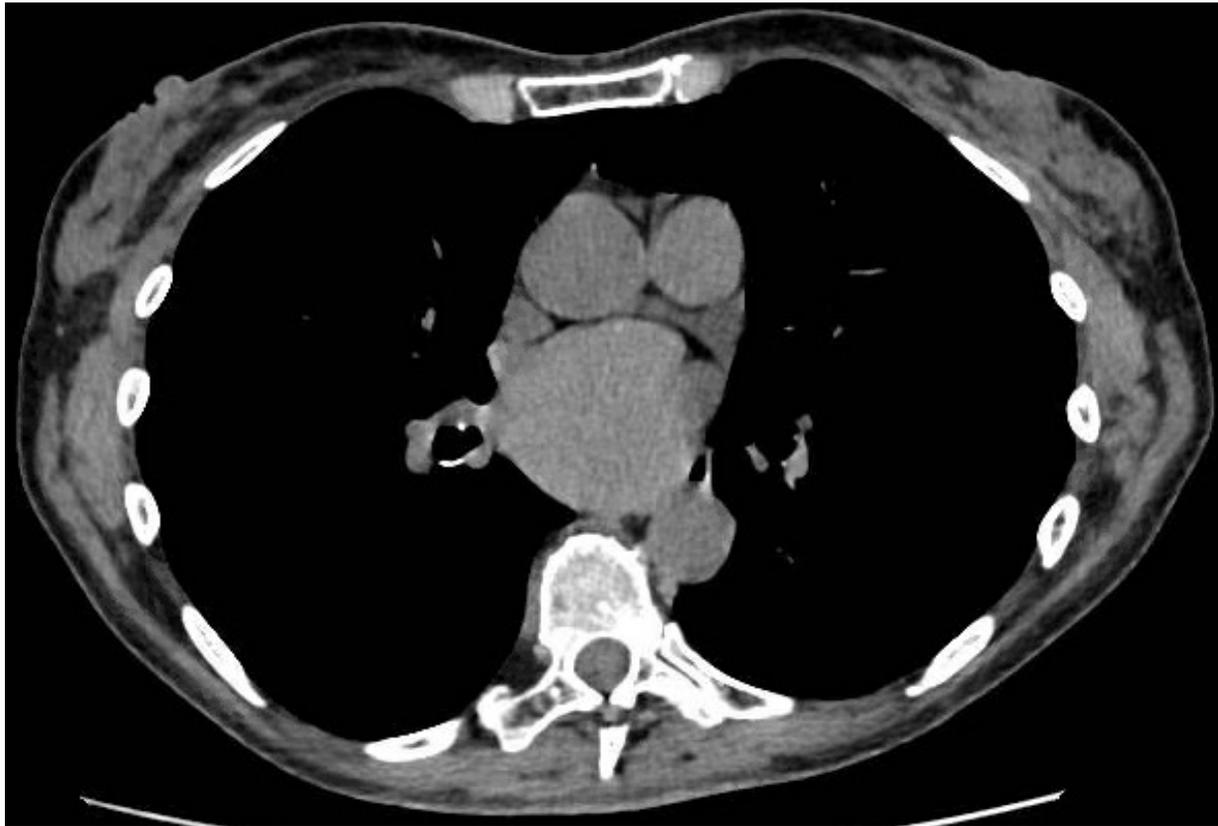
Rios et al, Case Rep Pulmonol. 2013

Figure 3. Kyste bronchogénique ; a : au niveau du médiastin postérieur ; b : devant l'oreillette gauche.

Kystes Bronchogéniques : Imagerie Radiographie Thoracique

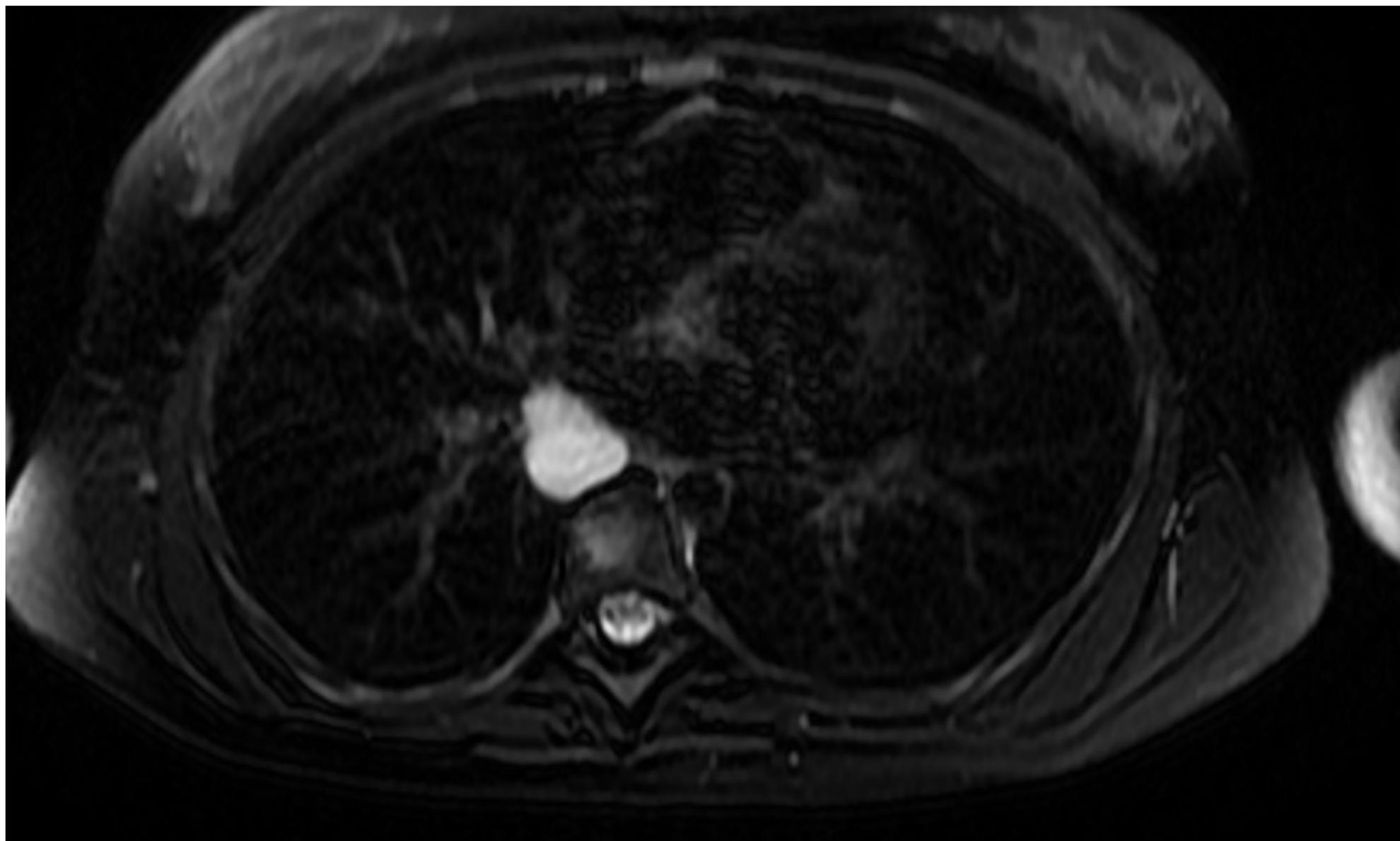


Kystes Bronchogéniques : Imagerie TDM

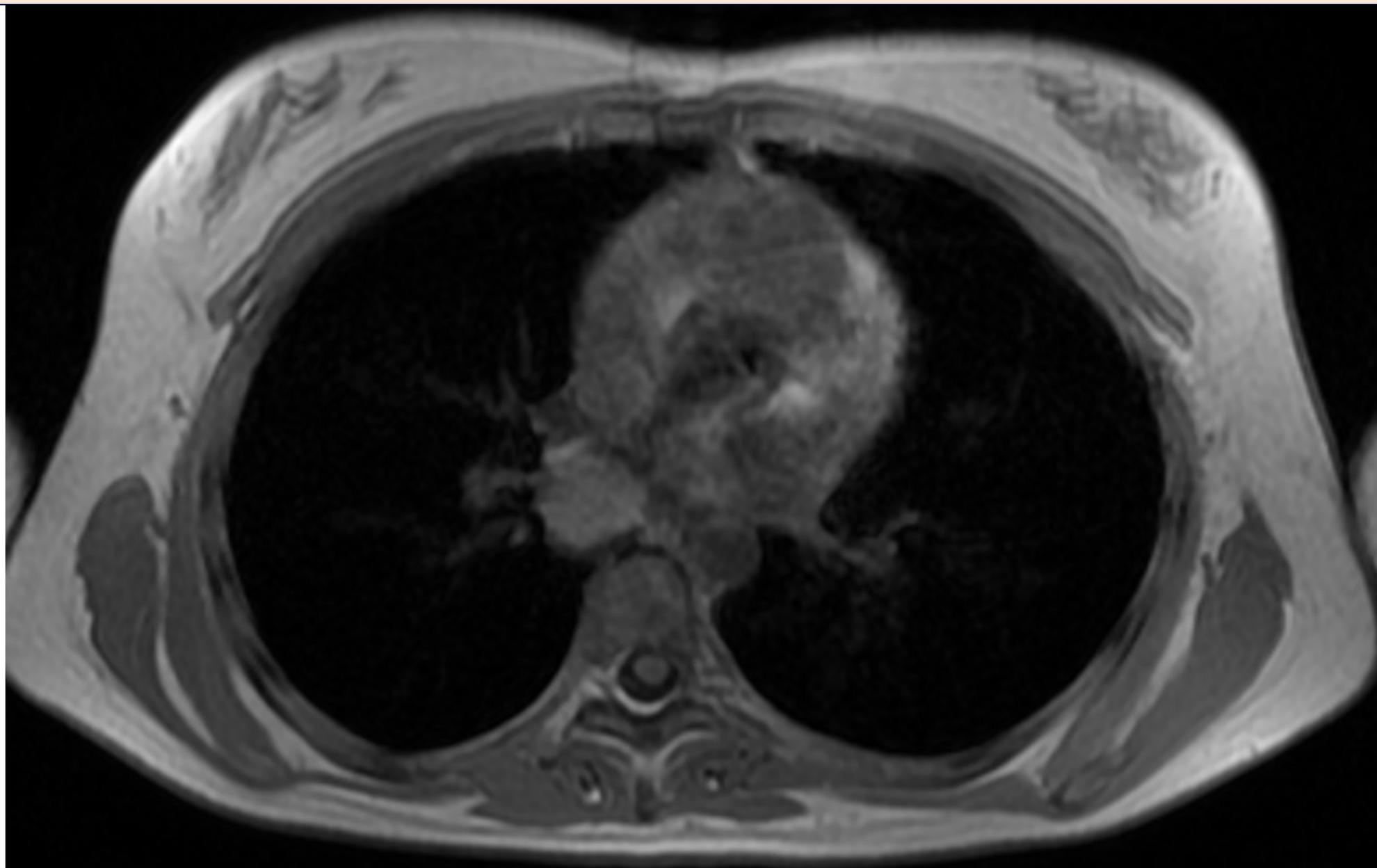


Kystes Bronchogéniques : Imagerie IRM

T2

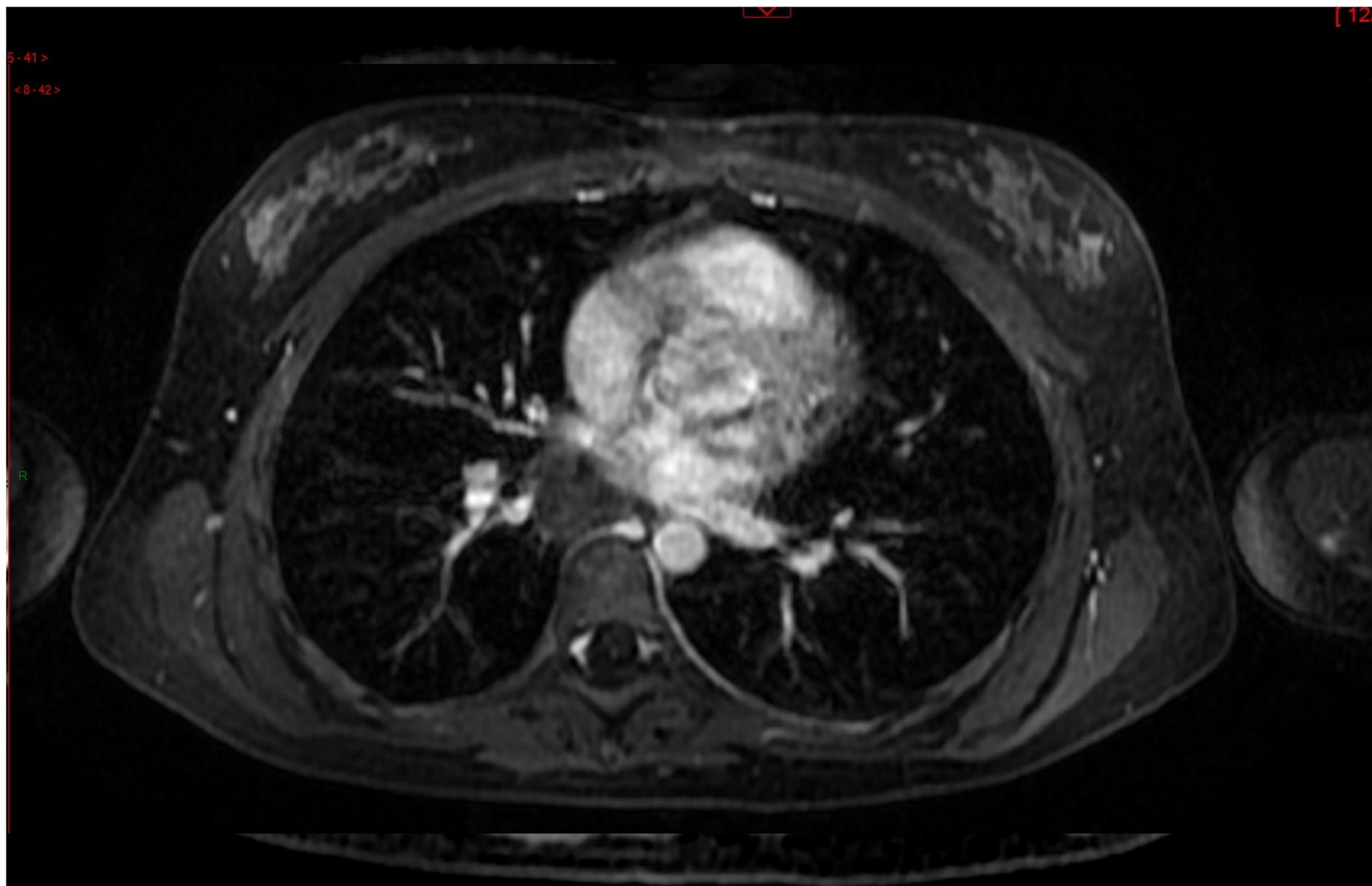


Kystes Bronchogéniques : Imagerie IRM



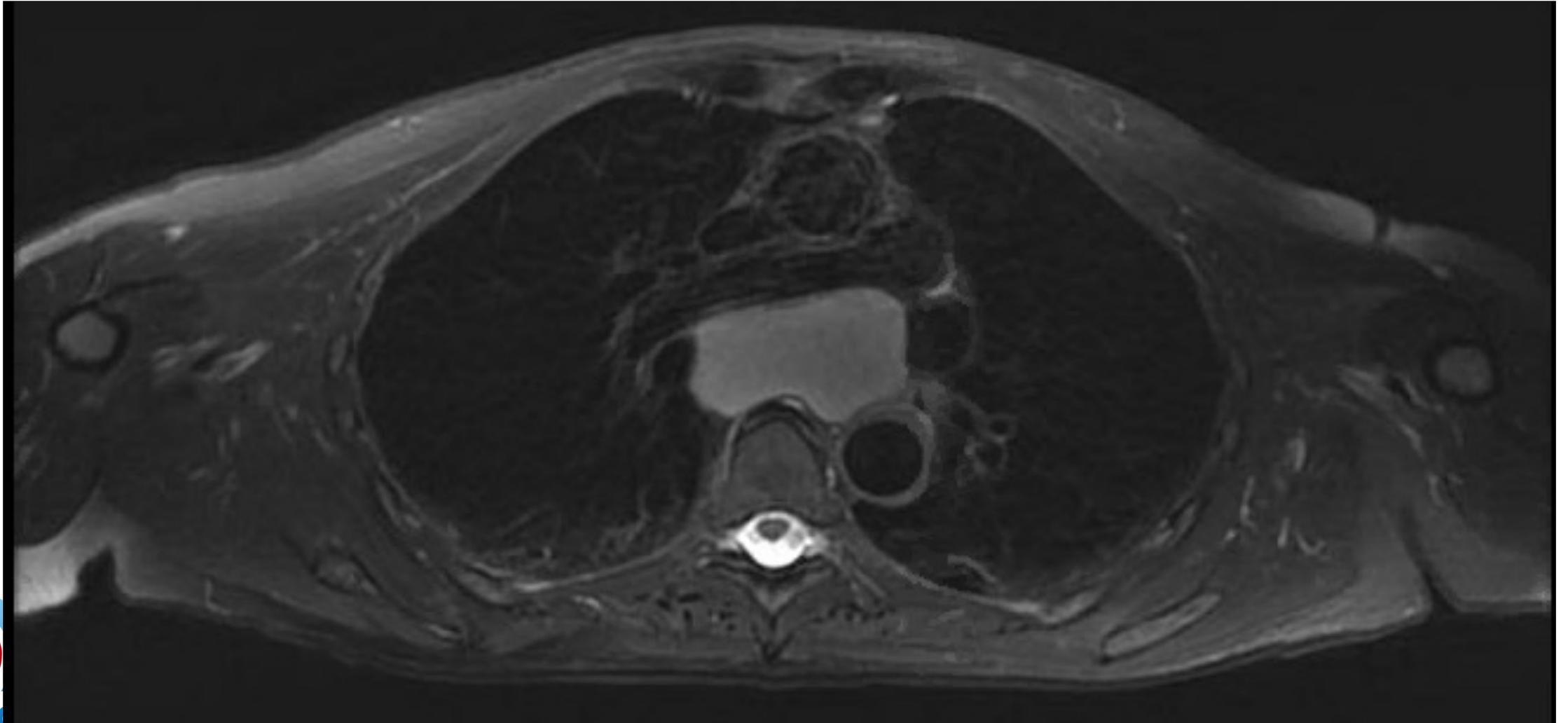
T1

Kystes Bronchogéniques : Imagerie IRM

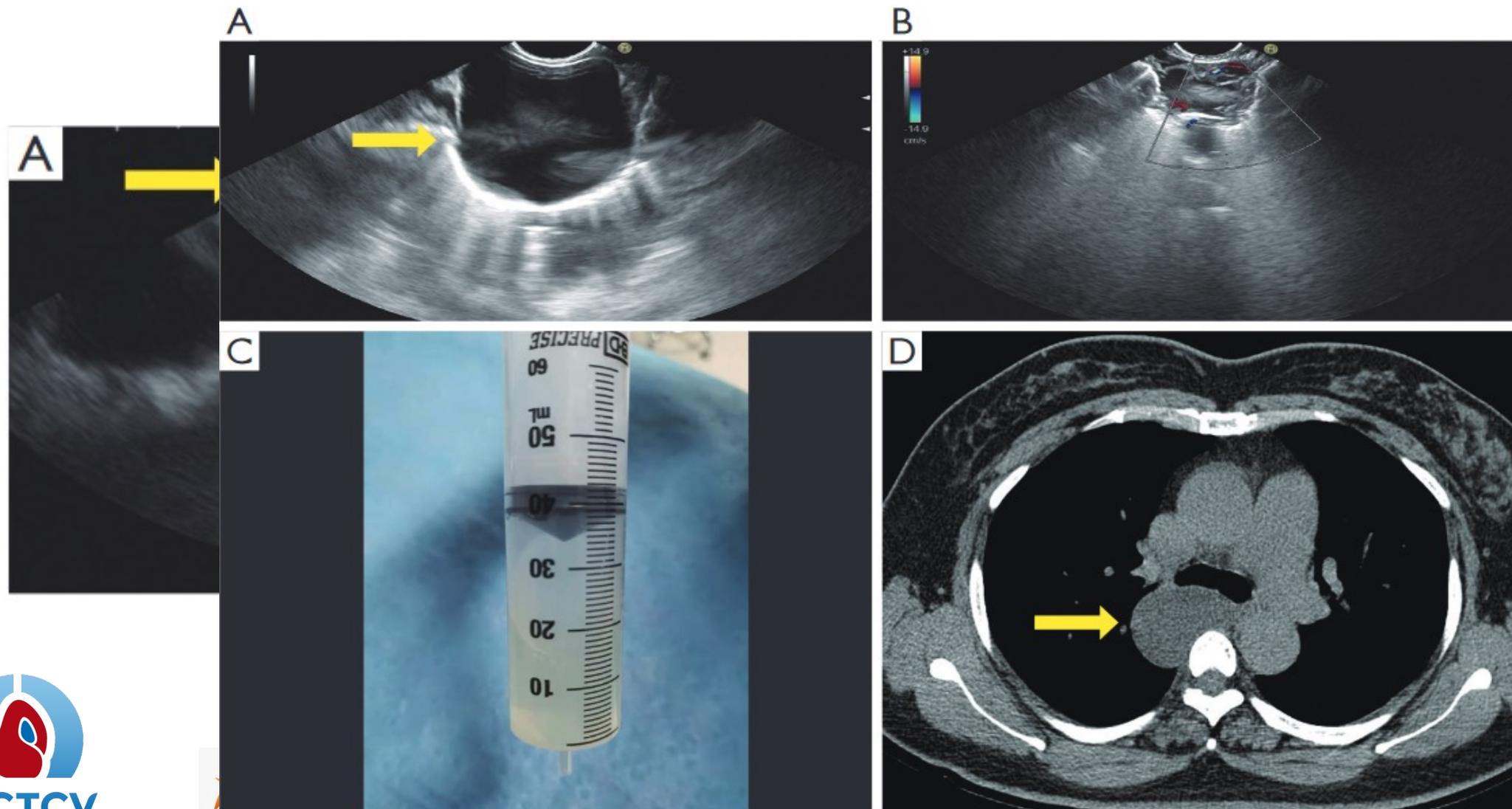


T1 water LAVA
Guadolinium

Kystes Bronchogéniques : Imagerie IRM

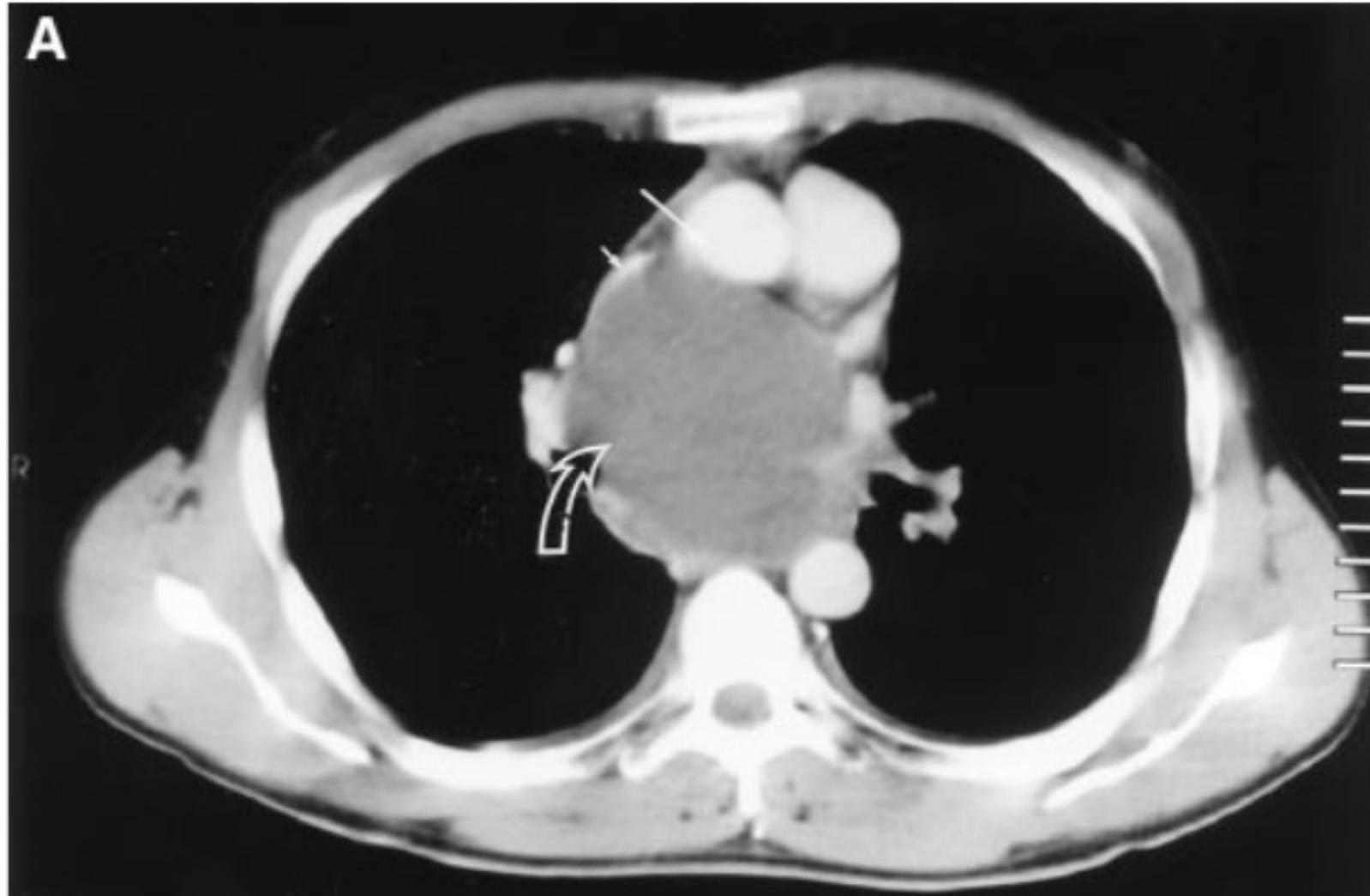


Kyste Bronchogénique et EBUS

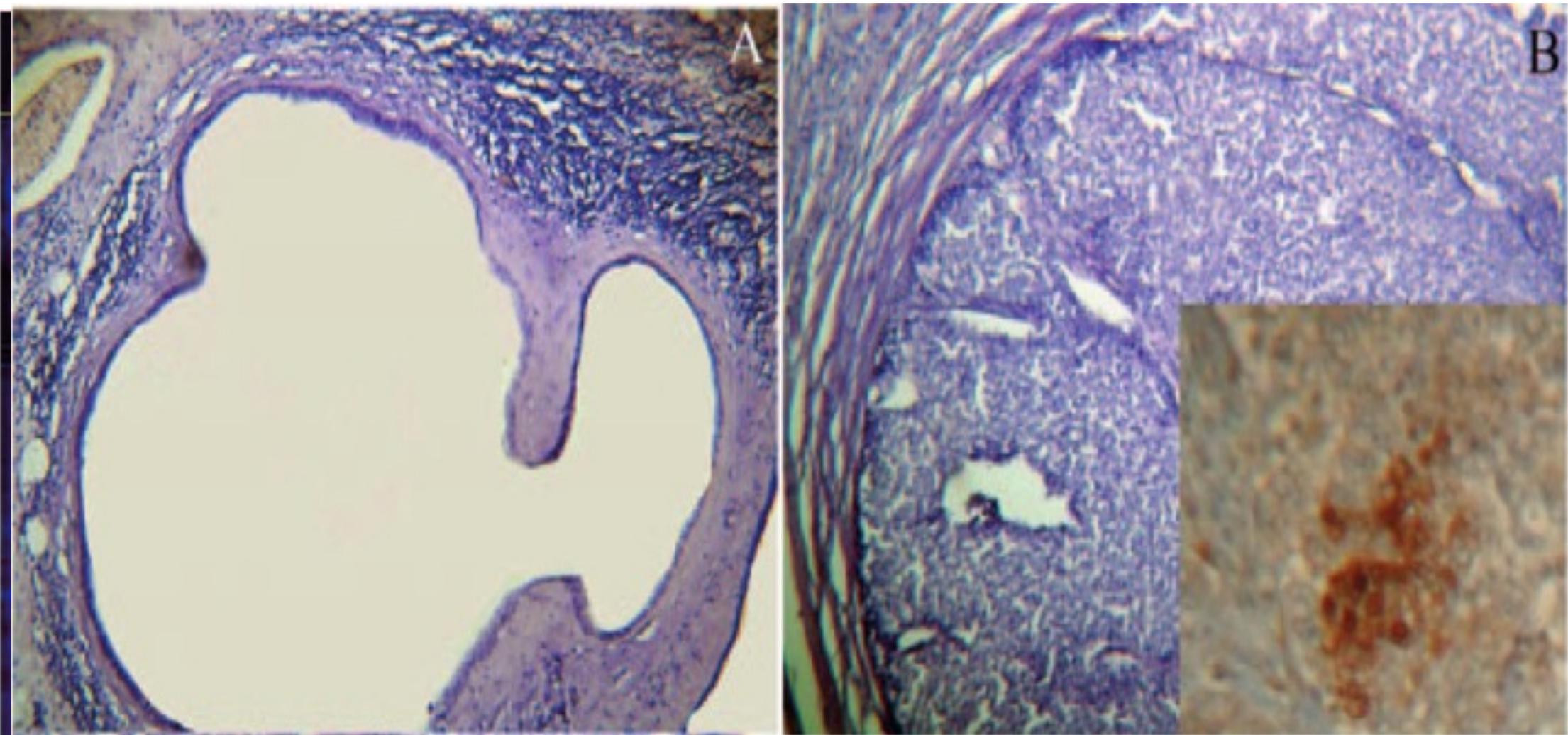


Cao et al., JTD 2022

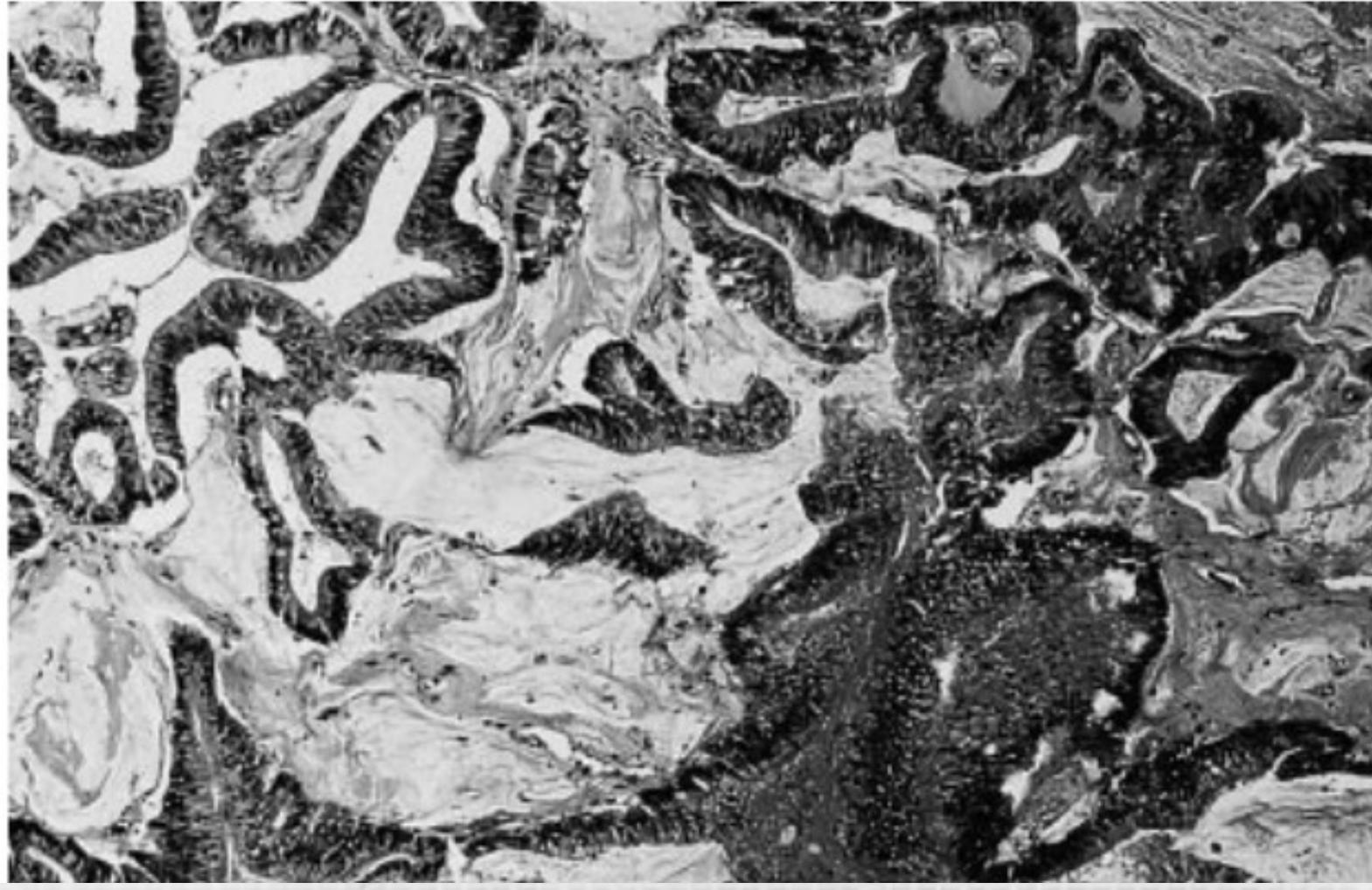
Kyste Bronchogénique et ETO



Kystes Bronchogéniques : Transformation Tumorale



Kystes Bronchogéniques : Transformation Tumorale

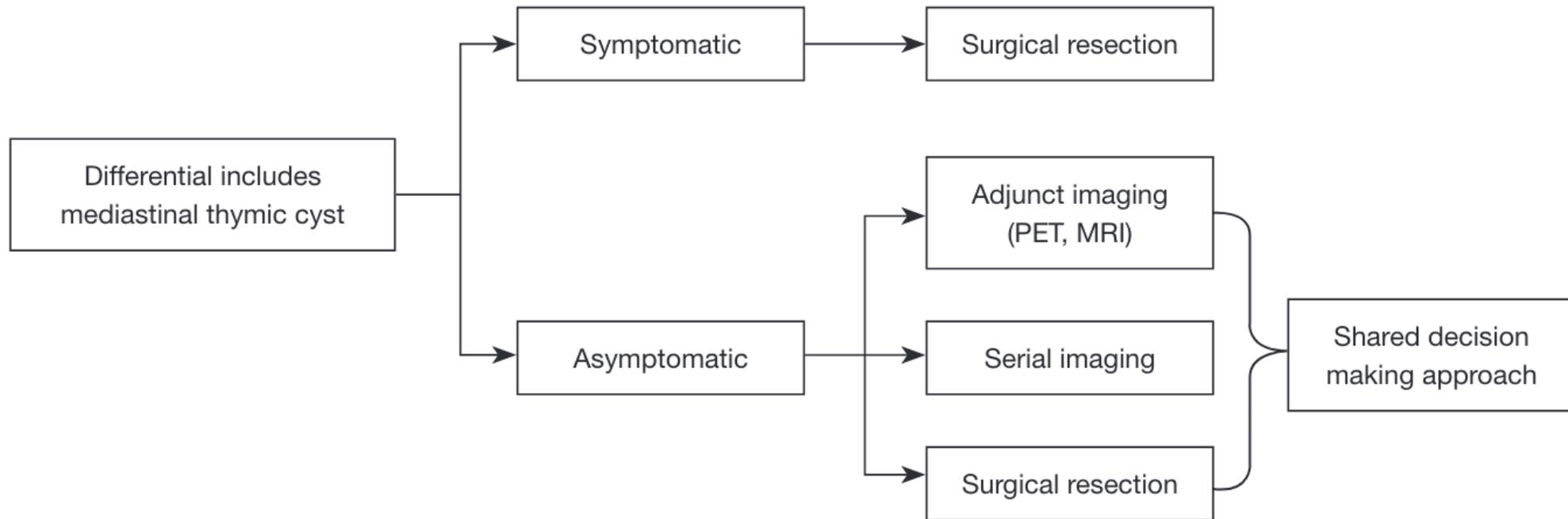


Sullivan et al. Pathology International 1999

Kystes Bronchogéniques : Stratégie Thérapeutique

Mediastinal thymic cysts: a narrative review

Keaton Cooley-Rieders, Robert M. Van Haren



Treatment algorithm. PET, positron emission tomography; MRI, magnetic resonance imaging.

Kystes Bronchogéniques : Indication chirurgicale

Table 1 Demographic characteristics of the 2 groups

Variables	VATS (n=65)	PLT (n=34)	P value
Age (years) (range)	47 (16–79)	42 (19–78)	0.33
Gender (case %)			0.53
Male	33 (50.77%)	15 (44.12%)	
Female	32 (49.23%)	19 (55.88%)	
Body mass index (mean ± SD) (kg/m ²)	23.5±3.40	22.7±3.36	0.27
Preoperative symptom (case %)			0.63
Yes	33 (50.77%)	19 (55.88%)	
No	32 (49.23%)	15 (44.12%)	
Anatomical location of cysts (case %)			0.12
Anterosuperior mediastinum	25 (38.46%)	17* (50.00%)	
Middle mediastinum	4 (6.15%)	5 (14.70%)	
Posterior mediastinum	36 (55.39%)	12 (35.30%)	

*, one case of MBC accompany pulmonary sequestration. VATS, video-assisted thoracic surgery; PLT, posterolateral thoracotomy; SD, standard deviation.

Kystes Bronchogéniques : Indication chirurgicale

doi:10.1510/icvts.2010.233114

INTERACTIVE
CARDIOVASCULAR AND
THORACIC SURGERY

Interactive CardioVascular and Thoracic Surgery 11 (2010) 649-659

www.icvts.org

Best evidence topic - Thoracic oncologic

Should asymptomatic bronchogenic cysts in adults be treated conservatively or with surgery?

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Kystes Bronchogéniques : Transformation Tumorale

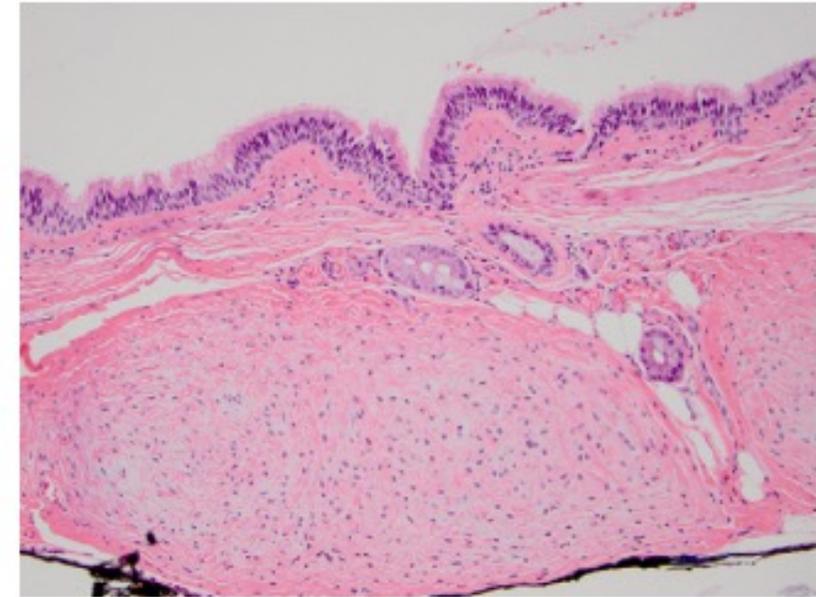
Table 2 Characteristics of patients with malignant change arising in bronchogenic cyst

Author, year	Ref. no.	Age(y)/sex	Cyst size (cm)	Symptoms	Site	Histological type
Moersch & Clagett, 1947	12	22/F	NS	Dyspnea	Upper mediastinum	Adenocarcinoma
Moersch & Clagett, 1947	12	36/M	NS	Chest pain	Ant. thoracic wall	Squamous cell carcinoma
Behrend & Kravitz, 1951	13	25/M	NS	Chest pain, bloody sputum	R. lower lobe	Fibrosarcoma
Larkin & Phillips, 1955	14	53/M	NS	Cough, hemoptysis	R. middle lobe	Squamous cell carcinoma
West & Van Schoonhoven, 1957	15	39/F	4	Chest pain, fever	R. upper lobe	Undifferentiated carcinoma
Peabody <i>et al.</i> , 1957	16	54/M	6	Cough	R. upper lobe	Undifferentiated carcinoma
Bauer, 1961	17	30/M	8	Chest pain	R. lower lobe	Squamous cell carcinoma
Greenfield & Howe, 1965	18	37/M	11 × 9 × 5	Dyspnea, cough	Ant. to left hilum	Bronchial adenoma
Bernheim <i>et al.</i> , 1980	19	41/M	20 × 17 × 10	Chest pain	Ant. inf. thoracic wall	Leiomyosarcoma
Krous & Sexauer, 1981	20	2/F	11 × 12 × 9.5	Respiratory tract infections	L. lower lobe	Embryonal rhabdomyosarcoma
Miralles <i>et al.</i> , 1981	21	42/M	NS	Chest pain, cough	Upper mediastinum	Anaplastic carcinoma
Ohtsuka <i>et al.</i> , 1981	22	39/M	10	Lymphadenopathy	L. hilum	Adenocarcinoma
Prichard <i>et al.</i> , 1984	23	41/F	6	Cough, chest pain	L. lower lung	Adenocarcinoma
Kusaka <i>et al.</i> , 1991	24	48/F	10 × 9 × 8	NS	L. upper lung	Adenocarcinoma
Narita <i>et al.</i> , 1992	25	61/F	7	Hemoptysis	L. lower lung	Adenocarcinoma
Suen <i>et al.</i> , 1993	26	8/F	2 × 3 × 3	Tracheal obstruction	Subcarinal region	Adenocarcinoma
Okada <i>et al.</i> , 1996	27	52/M	10/5 bilocular	Lumbago	L. ant. mediastinum	Anaplastic carcinoma
Cuyppers <i>et al.</i> , 1996	28	70/NS	3.5	NS	R. hilum	Squamous cell carcinoma
Present case		55/F	10 × 8 × 4	Abdominal discomfort	Abdominal retroperitoneum	Adenocarcinoma

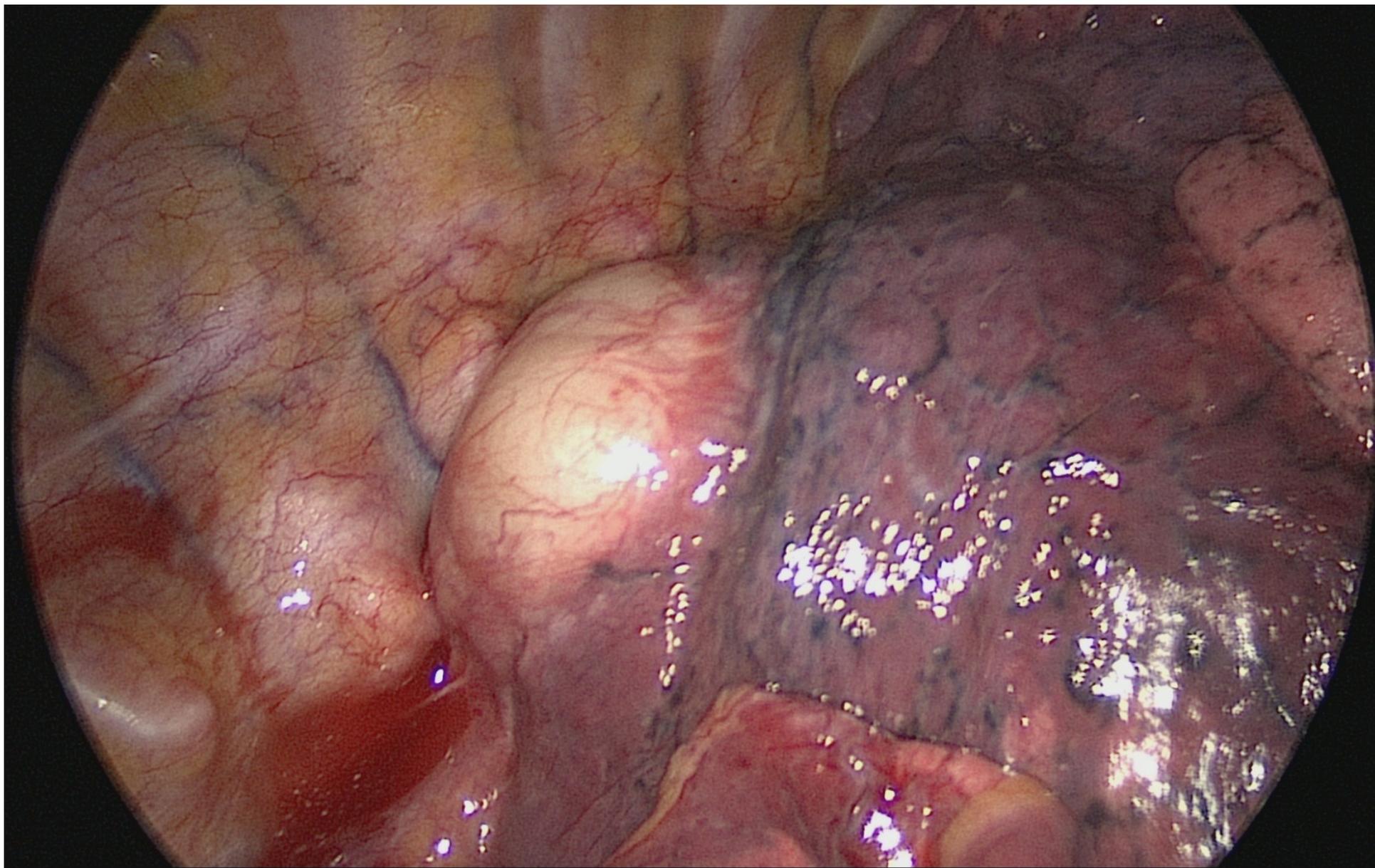
NS, not stated; Ant., anterior; Sup., superior; Inf., inferior; L, left; R, right; y, years.

Kystes Bronchogéniques de l'adulte : objectif de la chirurgie

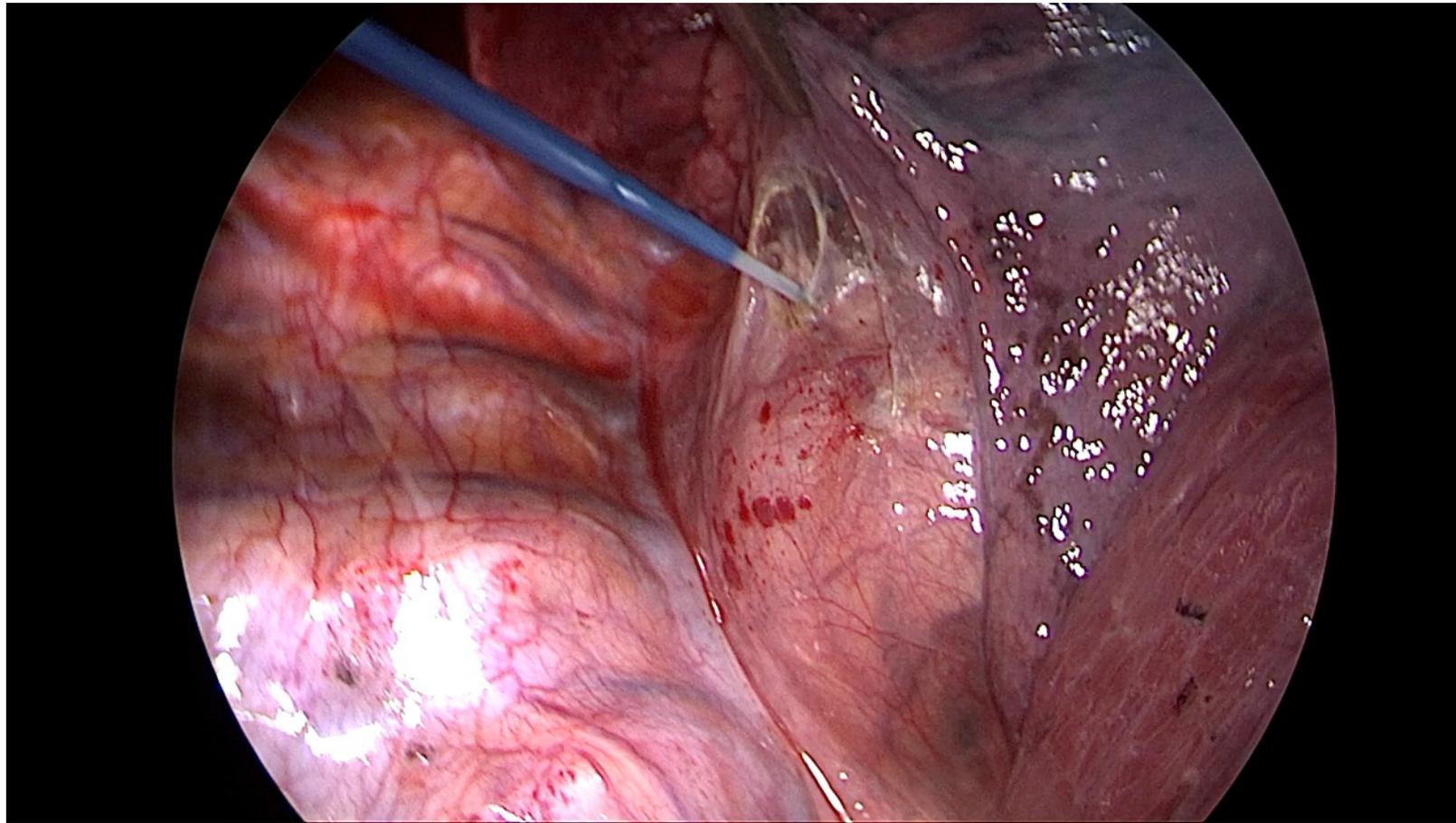
- Résection complète du kyste
 - Levée des symptômes ou complications
 - Arrêt de la croissance
 - Prévenir les complications
 - Éviter la récurrence (si non R0)
 - Confirmation du diagnostic (anatomopathologie)



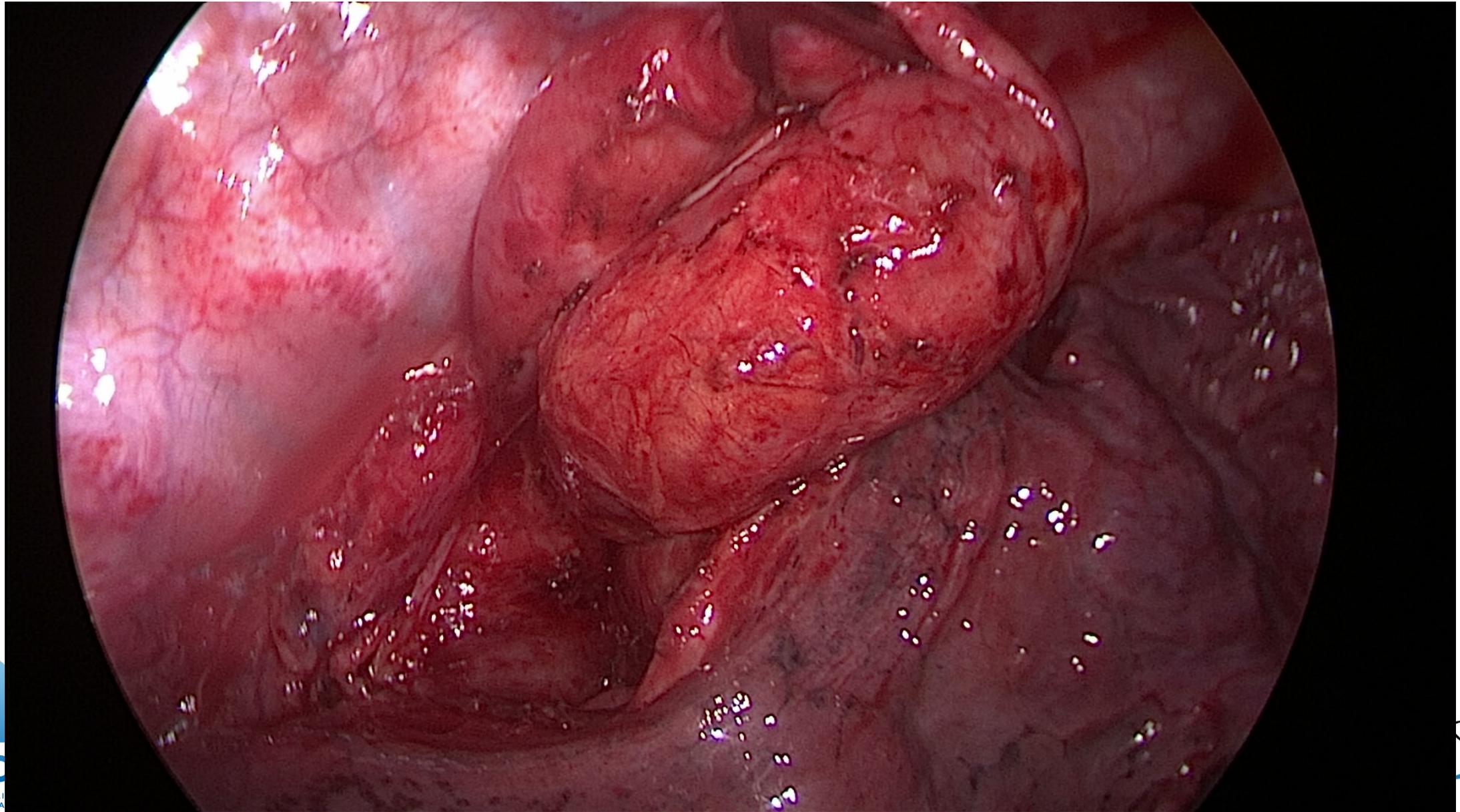
Kystes Bronchogéniques de l'adulte : peropératoire



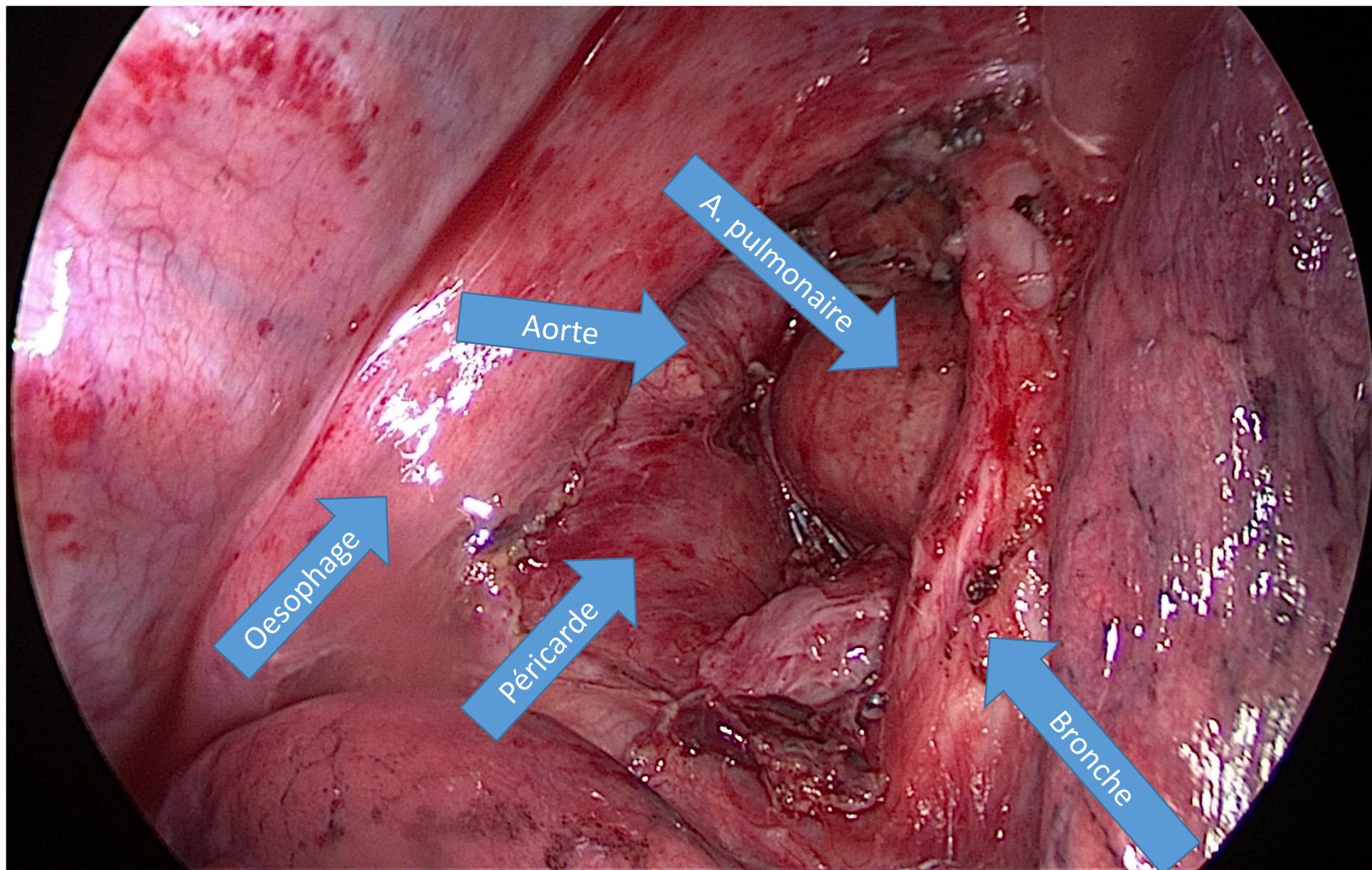
Kystes Bronchogéniques de l'adulte : peropératoire



Kystes Bronchogéniques de l'adulte : peropératoire



Kystes Bronchogéniques de l'adulte : peropératoire



Kystes Bronchogéniques de l'adulte : Morbidité

Table 2 Intraoperative findings and perioperative outcomes of the 2 groups

Variables	VATS (n=65)	PLT (n=34)	P value
Maximum diameter of cysts (mean ± SD) (cm)			
Anterosuperior mediastinum	3.87±2.02	5.20±2.54	0.07
Middle mediastinum	4.88±1.65	6.66±1.74	0.16
Posterior mediastinum	4.41±1.21	4.85±1.05	0.27
Operative time (mean ± SD) (min)	108.77±47.81	144.62±55.16	0.001
Intraoperative blood loss (mL) (range)	20 (10–1,000)	100 (20–600)	<0.001
Conversion to PLT	1	–	–
Pleural atresia (case %)			0.63
Yes	6 (9.2%)	5 (14.7%)	
No	59 (90.8%)	29 (85.3%)	
Incomplete resection of the cyst wall (case %)			0.22
Yes	2 (3.07%)	3 (8.82%)	
No	63 (96.93%)	31 (91.18%)	
Surgery-related complications (case %)			>0.99
Blood vessel injury	2 (3.07%)*	1 (2.94%)	
Esophageal injury	0 (0 %)	1 (2.94 %)	
Tracheobronchial injury	1 (1.53 %)	2 (5.88 %)	
Duration of intensive care unit stay (day) (range)	0 (0–3)	0 (0–2)	0.09
Duration of chest drainage (mean ± SD) (day)	2.52±1.29	3.71±1.55	<0.001
Pleural drainage of the first three days after surgery (mL) (range)	240 (35–1,500)	400 (50–2,000)	0.002
Postoperative hospital stay (mean ± SD) (day)	4.94±2.01	8.64±5.52	0.001
Postoperative complications (case %)			0.89
Yes	2 (3.07%) [†]	2 (5.88%)	
No	63 (96.93%)	32 (94.12%)	

Kystes Bronchogéniques de l'adulte : Morbidité

Table 2 Peri- and postoperative results of patients with primary mediastinal cysts

Variables	Group I (N = 183)	Group II (N = 60)	Group III (N = 39)	F-value	P-value
Operation time (mean ± SD, range)	102.5 ± 37.6 (40.0–250.0)	103.3 ± 37.8 (25.0–190.0)	100.5 ± 58.4 (40.0–360.0)	0.055	0.947
Blood loss (mean ± SD, range)	49.5 ± 58.9 (5.0–500.0)	57.2 ± 71.8 (10.0–450.0)	58.3 ± 130.3 (5.0–600.0)	0.376	0.687
Adhesions around the cyst (%)	53 (29.0%)	21 (35.0%)	14 (35.9%)	0.612	0.543
Surgery-related complications (%)	2 (1.1%)	4 (6.7%)	2 (5.1%)	1.355	0.260
Esophageal injury	0	2	2		
Tracheal injury	0	2	0		
Pericardial injury	2	0	0		
Incomplete excision of the cyst wall (%)	0	7 (11.7%)	0	14.504	<0.001
Chest tube duration (median, IQR)	3 (2–3)	2 (2–3)	2 (1–3)	1.866	0.157
Duration of hospital stay (median, IQR)	4 (4–6)	4 (3–5)	4 (3–5)	1.907	0.150
Postoperative complications (%)	9 (4.9%)	4 (6.7%)	3 (7.7%)	0.299	0.742
Arrhythmia	5	1	1		
Pneumonia	2	1	1		
Prolonged air leakage (≥7 days)	0	1	0		
Chylothorax	2	1	1		
Surgical approaches by VATS				17.615	<0.001
Biportal	18	14	18		
Triportal	164	45	19		
Conversion of surgical approach	1	1	2	1.916	0.149
Recurrence/follow-up patients	0/159	0/42	0/29		

Group I: Patients with anterior mediastinal cyst. Group II: Patients with middle mediastinal cyst. Group III: Patients with posterior mediastinal cyst. IQR, interquartile range; SD, standard deviation.

Kystes Bronchogéniques de l'adulte : Morbidité

Table 3 Univariate and multivariable logistic regression analysis for factors extending operative duration†

Variables	Univariate analysis			Multivariable analysis		
	OR	95% CI	P-value	OR	95% CI	P-value
Age (≤ 50 vs. > 50 years)	0.777	0.449–1.347	0.369	—	—	—
Sex (female vs. male)	1.246	0.718–2.160	0.433	—	—	—
Clinical symptom (yes vs. no)	1.431	0.783–2.616	0.243	—	—	—
Location (Group I vs. Group II and III)	1.234	0.700–2.174	0.467	—	—	—
Preoperative follow-up time (≤ 2 vs. > 2 years)	1.579	0.649–3.843	0.311	—	—	—
Maximal diameter (> 5 vs. ≤ 5 cm)	1.998	1.111–3.558	0.019	2.106	1.147–3.865	0.016
Diagnosed as mediastinal cyst by CT (yes vs. no)	0.792	0.457–1.372	0.405	—	—	—
Mediastinal structure damage (yes vs. no)	10.475	2.062–53.221	0.001	10.875	2.015–58.681	0.006
Adhesions to mediastinal structure (yes vs. no)	2.378	1.353–4.221	0.002	2.345	1.303–4.223	0.005

†The operation time prolonged is defined as the operation time was more than 120 minutes.

Table 4 Univariate and multivariable logistic regression analysis for factors that increased the blood loss†

Variables	Univariate analysis			Multivariable analysis		
	OR	95% CI	P-value	OR	95% CI	P-value
Age (≤ 50 vs. > 50 years)	0.346	0.090–1.331	0.107	—	—	—
Sex (female vs. male)	0.730	0.209–2.552	0.621	—	—	—
Clinical symptoms (yes vs. no)	3.317	0.982–11.201	0.042	3.612	0.876–14.897	0.076
Location (Group I vs. Group II and III)	1.569	0.467–5.277	0.463	—	—	—
Preoperative follow-up time (≤ 2 vs. > 2 years)	0.734	0.212–2.601	0.767	—	—	—
Maximal diameter (> 5 vs. ≤ 5 cm)	5.436	1.543–19.151	0.004	4.428	1.243–16.489	0.022
Diagnosed as mediastinal cyst by CT (yes vs. no)	1.174	0.350–3.938	0.795	—	—	—
Mediastinal structure damage (yes vs. no)	0.960	0.937–0.983	0.563	—	—	—
Adhesions to mediastinal structure (yes vs. no)	10.937	2.311–51.756	< 0.001	9.617	2.003–46.169	0.005

†The blood loss increased is defined as the blood loss is more than 100 mL.

Conclusion

- Physiopathologie du kyste justifie d'un traitement chirurgical
 - Formes asymptomatiques
 - Formes symptomatiques ou compliquées
(éviter si possible d'attendre ce stade)
- La chirurgie permet de confirmer le diagnostic, prévenir les complications, éviter la dégénérescence maligne, traitement définitif.
- Exérèse complète indépendamment de la voie d'abord VATS/RATS/Open

