PROGRAMME

MERCK

CLUB THYROÏDE
ILE DE FRANCE

Samedi 10 juin 2017
de 8h30 à 12h30

Hôpital Américain de Neuilly
Amphi Gould
Auditorium Bât F - Niveau 0
63 boulevard Victor Hugo
92200 Neuilly-sur-Seine

NIFTP ASPECTS ECHOGRAPHIQUES

Dr Gilles Russ
Dr Bénédicte Royer

Institut E3M Endocrinologie Maladies Métaboliques et Médecine interne

CPi

Centre de Pathologie et d'Imagerie, Paris
Unité Thyroïde et Tumeurs Endocrines
du Pr Leenhardt
Hôpital La Pitié-Salpêtrière
Université Pierre et Marie Curie - *Paris VI*

Aspects échographiques des carcinomes papillaires de forme vésiculaire (**CPFV**): ils sont connus… et mélangés avec ceux des NIFTP !

J Ultrasound Med. 2008 Oct;27(10):1431-7.

Sonographic features of the follicular variant of papillary thyroid carcinoma.

Yoon JH[1], Kim EK, Hong SW, Kwak JY, Kim MJ.

Sensibilité US: 67%

J Ultrasound Med. 2009 Dec;28(12):1685-92.

Sonographic features of follicular variant papillary thyroid carcinomas in comparison with conventional papillary thyroid carcinomas.

Kim DS[1], Kim JH, Na DG, Park SH, Kim E, Chang KH, Sohn CH, Choi YH.

Sensibilité US: 48%

Thyroid. 2014 Apr;24(4):683-8. doi: 10.1089/thy.2013.0351. Epub 2014 Jan 29.

Follicular variant of papillary thyroid carcinoma: distinct biologic behavior based on ultrasonographic features.

Rhee SJ[1], Hahn SY, Ko ES, Ryu JW, Ko EY, Shin JH.

Ultrasonography. 2016 Jan;35(1):47-54. doi: 10.14366/usg.15037. Epub 2015 Jul 24.

The follicular variant of papillary thyroid carcinoma: characteristics of preoperative ultrasonography and cytology.

Yoon JH[1], Kwon HJ[2], Kim EK[1], Moon HJ[1], Kwak JY[1].

Sensibilité US: 75%

Ultrasound Int Open. 2016 May;2(2):E47-53. doi: 10.1055/s-0036-1582304. Epub 2016 Apr 28.

Can New Ultrasound Signs Help in Identifying Follicular Variant of Papillary Carcinoma of Thyroid? - A Pilot Study.

Anuradha C[1], Manipadam MT[2], Asha HS[3], Dukhabandhu N[3], Abraham D[4], Paul MJ[4].

Sensibilité US: 91%

Aspects échographiques des carcinomes papillaires de variant folliculaire (**CPFV**): ils sont connus et mélangés avec ceux des NIFTP !

- Forme ovale: 95%
- Contours microlobulés: 41%-55%
- Halo absent, incomplet ou épais: 75%
- Isoéchogène: 22% - 52%
- Echostructure hétérogène: 91%

- SENSIBILITÉ: 48% -75% (91%)

Thyroid. 2014 Apr;24(4):683-8. doi: 10.1089/thy.2013.0351. Epub 2014 Jan 29.

Follicular variant of papillary thyroid carcinoma: distinct biologic behavior based on ultrasonographic features.

Rhee SJ[1], Hahn SY, Ko ES, Ryu JW, Ko EY, Shin JH.

- Background: Follicular variants of papillary thyroid carcinoma (FVPTCs) have dichotomous ultrasonographic (US) features. **We investigated the differences in the biologic behavior of FVPTC according to US features**. Methods: We reviewed the US findings, pathologic reports, and medical charts of 75 consecutive patients with FVPTC who underwent surgery at our institution from January 2006 to December 2008. **FVPTCs were divided into PTC-like and follicular neoplasm (FN)-like based on US findings**. **PTC-like nodules were defined as having at least one accepted malignant feature (a taller-than-wide shape, an infiltrative margin, marked hypoechogenicity, and micro- or macrocalcifications), whereas FN-like nodules showed oval solid features without malignant features**. The prognostic factors were compared.
- Results: Of the 75 FVPTCs, 42 (56%) were PTC-like and 33 (44%) were FN-like. The mean tumor size of PTC- like FVPTC was significantly smaller than that of FN-like FVPTC (p = 0.0483). PTC-like FVPTC showed a significantly higher rate of multifocality than FN-like FVPTC (48% and 15% respectively; p = 0.0031). Extrathyroidal extension occurred in 55% of PTC-like FVPTCs compared to 12% of FN-like FVPTCs (p = 0.0001). Lymph node metastasis was more frequent in PTC-like FVPTC than in FN-like FVPTC (36% vs. 12%; p=0.0197). PTC-like FVPTC had a higher stage than FN-like FVPTC (p=0.0001). These significant factors persisted in multivariate analysis. Only one recurrence and one distant metastasis were identified, and both occurred in PTC-like FVPTC.
- Conclusions: **FVPTC with malignant US features seems to behave in a more aggressive fashion than FVPTC without malignant US features. US can help predict the behavior of FVPTC.**

Thyroid. 2014 Apr;24(4):683-8. doi: 10.1089/thy.2013.0351. Epub 2014 Jan 29.

Follicular variant of papillary thyroid carcinoma: distinct biologic behavior based on ultrasonographic features.

Rhee SJ[1], Hahn SY, Ko ES, Ryu JW, Ko EY, Shin JH.

TABLE 2. MULTIVARIATE ANALYSIS FOR BIOLOGICAL BEHAVIOR OF PTC-LIKE FVPTCS COMPARED TO FN-LIKE FVPTCS AT ULTRASOUND

Factors	*Odds ratio*	*CI*	p-*Value*
Tumor size[a]	—	—	0.0409
Multifocality	5.279	[1.67–16.59]	0.0044
Extrathyroidal extension	8.717	[2.59–29.32]	0.0005
Lymph node metastasis	5.634	[1.39–22.80]	0.0154
A higher stage	6.862	[2.11–22.28]	0.0002

ASPECTS ECHOGRAPHIQUES DES NIFTP
ILS SONT ENCORE PEU CONNUS

Diagn Cytopathol. 2017 Jun;45(6):533-541. doi: 10.1002/dc.23709. Epub 2017 Mar 22.

Sonographic and cytologic differences of NIFTP from infiltrative or invasive encapsulated follicular variant of papillary thyroid carcinoma: A Review of 179 Cases.

Yang GCH[1], Fried KO[2], Scognamiglio T[1].

Clin Endocrinol (Oxf). 2017 Mar 2. doi: 10.1111/cen.13317. [Epub ahead of print]

Ultrasonography and cytology as predictors of noninvasive follicular thyroid (NIFTP) neoplasm with papillary-like nuclear features: importance of the differential diagnosis with the invasive encapsulated follicular variant of papillary thyroid cancer.

Rosario PW[1].

Clin Endocrinol (Oxf). 2017 Mar;86(3):444-450. doi: 10.1111/cen.13263. Epub 2016 Nov 17.

Preoperative differentiation between noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP) and non-NIFTP.

Hahn SY[1], Shin JH[1], Lim HK[2], Jung SL[3], Oh YL[4], Choi IH[5], Jung CK[6].

Diagn Cytopathol. 2017 Jun;45(6):533-541. doi: 10.1002/dc.23709. Epub 2017 Mar 22.

Sonographic and cytologic differences of NIFTP from infiltrative or invasive encapsulated follicular variant of papillary thyroid carcinoma: A Review of 179 Cases.

Yang GCH[1], Fried KO[2], Scognamiglio T[1].

Table IV. Sonographic Characteristics of Follicular Patterned Tumors with Papillary-Like Nuclear Features.

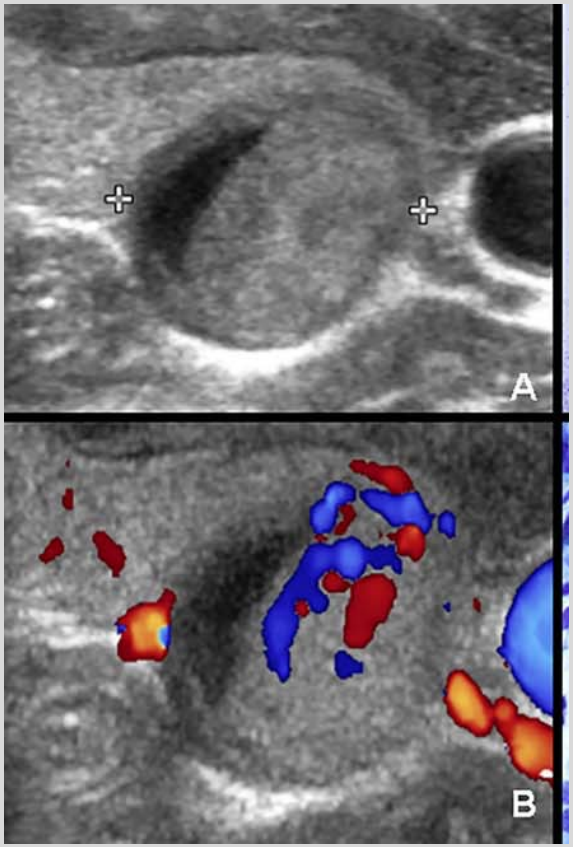
	NIFTP or minimally invasive EFVPC	CPFV encapsulé avec invasion *EFVPIC, overtly invasive*	CPFV infiltrant *IFVPTC*
Gray-scale ultrasound	Circumscribed oval nodule with a rim. Variable echogenicity[a]	Hypoechoic nodule with irregular or lobulated margins.	Taller-than-wide hypoechoic nodule with blurred margins
Color Doppler ultrasound	Mostly hypervascular	Mostly hypervascular	Mostly avascular
Cellularity in aspirates	Variable cellularity[b]	Variable cellularity[b]	Hypercellular, unless intratumoral fibrosis
Ultrasound impression	Benign or indeterminate	52.2% Benign or indeterminate 47.7% Suspicious	Suspicious
Tumor size (cm)	0.6–7.4 (mean 2.3)	0.8–6 (mean 2.6)	0.4–4 (mean 1.4)

In conclusion, ultrasound approximates gross pathology in our experience, and can detect overt invasion, but ultrasound cannot visualize vascular invasion, minimal capsular invasion or a small poorly differentiated focus within a NIFTP. Therefore, a nodule with a presumed NIFTP based on ultrasound and cytology features should still be excised for a thorough histopathologic examination, by reporting follicular neoplasm category (Bethesda IV/VI) or suspicious for malignancy category (Bethesda V/VI).

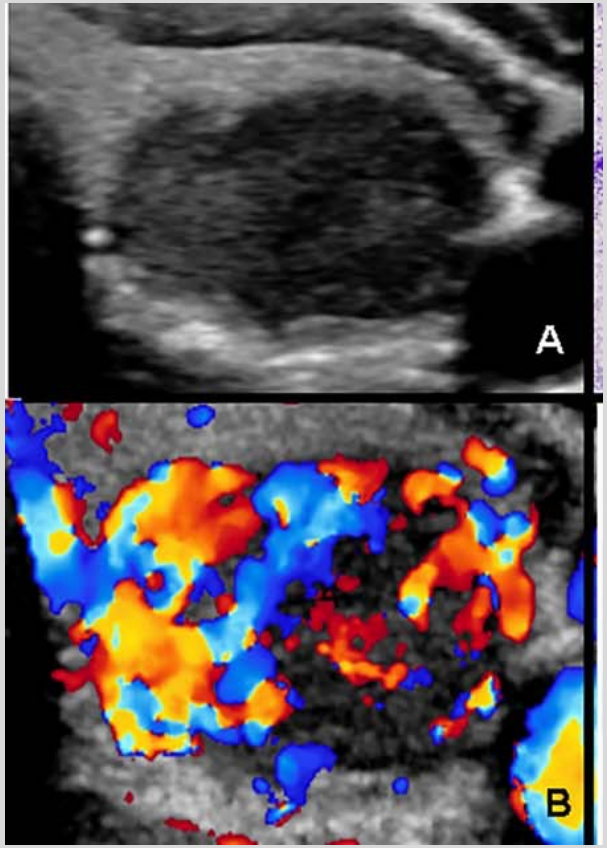
Diagn Cytopathol. 2017 Jun;45(6):533-541. doi: 10.1002/dc.23709. Epub 2017 Mar 22.

Sonographic and cytologic differences of NIFTP from infiltrative or invasive encapsulated follicular variant of papillary thyroid carcinoma: A Review of 179 Cases.

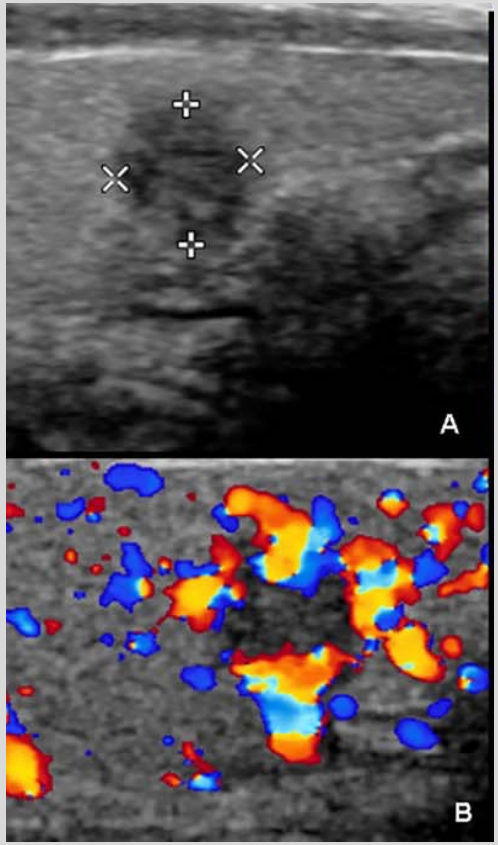
Yang GCH[1], Fried KO[2], Scognamiglio T[1].



NIFTP



CPFV ENCAPSULÉ AVEC INVASION



CPFV INFILTRANT

Clin Endocrinol (Oxf). 2017 Mar 2. doi: 10.1111/cen.13317. [Epub ahead of print]

Ultrasonography and cytology as predictors of noninvasive follicular thyroid (NIFTP) neoplasm with papillary-like nuclear features: importance of the differential diagnosis with the invasive encapsulated follicular variant of papillary thyroid cancer.

Rosario PW[1].

Table 1. Results of ultrasonography and cytology in NIFTP *vs* invasive EFVPTC

Category according to the ultrasonographic classification of the ATA	NIFTP (n = 120; %)[3]	Invasive EFVPTC (n = 54; %)	P-value
Undefined	5 (4·1)	4 (7·4)	0·46
Very low suspicion	0	0	
Low suspicion	39 (32·5)	12 (22·2)	0·2
Intermediate suspicion	70 (58·3)	30 (55·5)	0·74
High suspicion	6 (5)	8 (14·8)	0·03

In conclusion, US (using the ATA classification) and cytology category (using the Bethesda system) contribute little to the distinction between NIFTP and invasive EFVPTC.

Clin Endocrinol (Oxf). 2017 Mar;86(3):444-450. doi: 10.1111/cen.13263. Epub 2016 Nov 17.

Preoperative differentiation between noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP) and non-NIFTP.

Hahn SY[1], Shin JH[1], Lim HK[2], Jung SL[3], Oh YL[4], Choi IH[5], Jung CK[6].

Ultrasonography imaging findings	NIFTP (n = 34)	Non-NIFTP (n = 174)	Total (n = 208)	*P* value
Composition				0·117
Solid	29 (85·3)	156 (89·7)	185 (88·9)	
Predominantly solid	3 (8·8)	17 (9·8)	20 (9·6)	
Predominantly cystic	2 (5·9)	1 (0·6)	3 (1·4)	
Internal echogenicity				0·043*
Marked hypoechoic	7 (20·6)	36 (20·7)	43 (20·7)	
Hypoechoic	10 (29·4)	87 (50·0)	97 (46·6)	
Hyper- or isoechoic	17 (50·0)	51 (29·3)	68 (32·7)	
Orientation				0·195
Nonparallel	3 (8·8)	31 (17·8)	34 (16·3)	
Parallel	31 (91·2)	143 (82·2)	174 (83·7)	
Margin				0·001*
Spiculated/ microlobulated	5 (14·7)	81 (46·6)	86 (41·3)	
Circumscribed	29 (85·3)	93 (53·4)	122 (58·7)	
Calcification				0·031*
No calcification	25 (73·5)	83 (47·7)	108 (51·9)	
Microcalcification	4 (11·8)	31 (17·8)	51 (24·5)	
Macrocalcification	3 (8·8)	37 (21·3)	40 (19·2)	
Rim calcification	2 (5·9)	7 (4·0)	9 (4·3)	

All classifications were based on the recent multi-institutional study by Nikiforov et al.[10]: NIFTP and non- NIFTP including invasive EFVPTC and infiltrative FVPTC.

Noninvasive follicular thyroid neoplasm with papillary-like nuclear features lacks malignant ultrasonography features. Ultrasonography evaluation is pivotal in determining the next step of follicular variant of papillary thyroid carcinoma management.

Final K-TIRADS category	NIFTP	Non-NIFTP		0·024*
3 (Low suspicion)	14 (41·2)	44 (25·3)	58 (27·9)	
4 (Intermediate suspicion)	15 (44·1)	64 (36·8)	79 (38·0)	
5 (High suspicion)	5 (14·7)	66 (37·9)	71 (34·1)	

CARCINOME PAPILLAIRE DE FORME VÉSICULAIRE →NIFTP ? MÉTHODOLOGIE DE RECLASSEMENT – BÉNÉDICTE ROYER

- Relecture de 70 compte-rendus histologiques détaillés de CPVF
- Reclassement en NIFTP si items suivants présents:
  - N0
  - Absence d'invasion extra-thyroïdienne
  - Absence d'infiltration du tissu thyroïdien
  - Bonne limitation de la tumeur
  - Architecture vésiculaire exclusive, ≈ absence de papilles
  - Absence de calcifications (psammomes)
  - Absence de nécrose
  - Mitoses absentes ou rares
  - Pas d'aspects histologiques d'autres types de carcinome papillaire

CARCINOME PAPILLAIRE DE FORME VÉSICULAIRE →NIFTP ? RÉSULTATS DU RECLASSEMENT

- 70 cas de CPFV de 2011 à 2016
- Score TIRADS prospectif
- Parmi les 70 cas initialement classés en CPFV:
  - 23 reclassés en NIFTP
  - 47 sont classés en vrais CPFV

33% DES CARCINOMES PAPILLAIRES DE FORME VÉSICULAIRE RECLASSÉS EN NIFTP !

LE SCORE TIRADS PERMET-IL DE DISTINGUER NIFTP ET CPFV ?

TIRADS %	2	3	4A	4B	5	TOTAL	Taille
NIFTP	0	13%	87%	0	0	23	28
CPFV	0	2%	45%	42%	11%	47	17

UN TIRADS 4B OU 5 N'EST JAMAIS UN NIFTP
UN TIRADS 3 EST RAREMENT UN VRAI CPFV
MAIS LE CHEVAUCHEMENT DANS LES TIRADS 4A EST IMPORTANT
ET ILS REPRESENTENT 58% DES NODULES DE LA SERIE.

LES NIFTP SONT TOUJOURS OVALES ET BIEN LIMITES
ILS SONT HYPOÉCHOGÈNES DANS 87% DES CAS

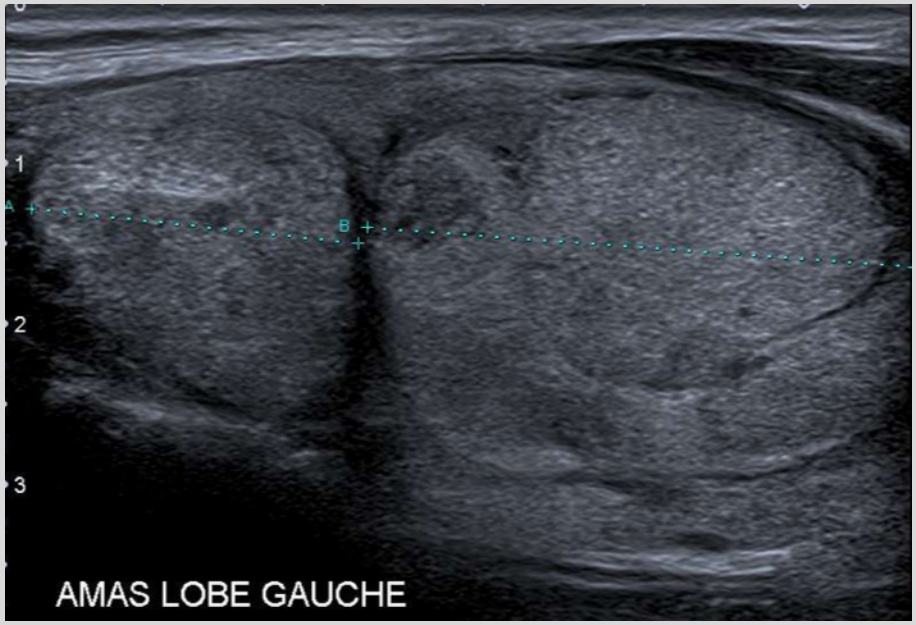
LA SENSIBILITÉ DU TIRADS POUR LES VRAIS CPFV EST DE 98%
Elle était auparavant artificiellement abaissée par les NIFTP

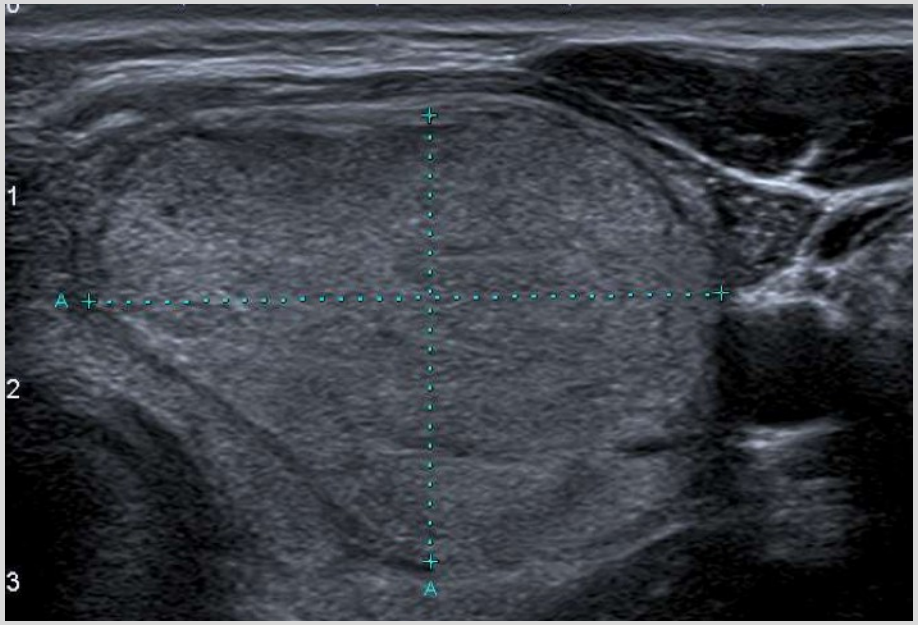
SIGNES ECHOGRAPHIQUES ACCESSOIRES ET NIFTP

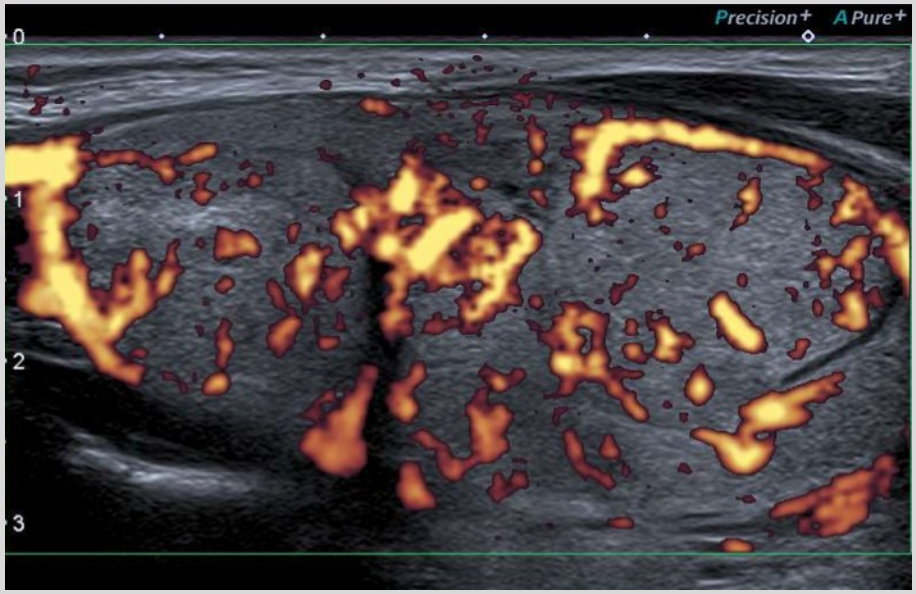
SIGNE ÉCHOGRAPHIQUE	NIFTP	CPFV	ODDS RATIO
SOLIDE	73%	84%	**1,1**
VASCULARISATION CENTRALE	20%	28%	**1,4**
MACROCALCIFICATIONS	5%	28%	**5,6**

1/3 DES TIRADS 4A A DES MACROCALCIFICATIONS
LEUR RISQUE DE CORRESPONDRE A UN VRAI CARCINOME EST MULTIPLIE PAR 5,6

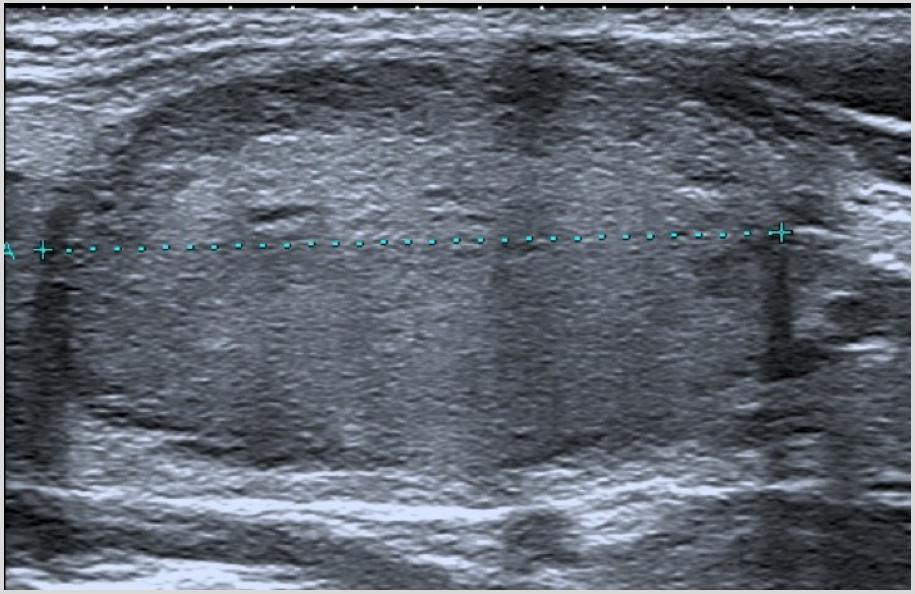
LE SCORE TIRADS DIFFERENCIE NIFTP ET CPFV DANS 61% DES CAS

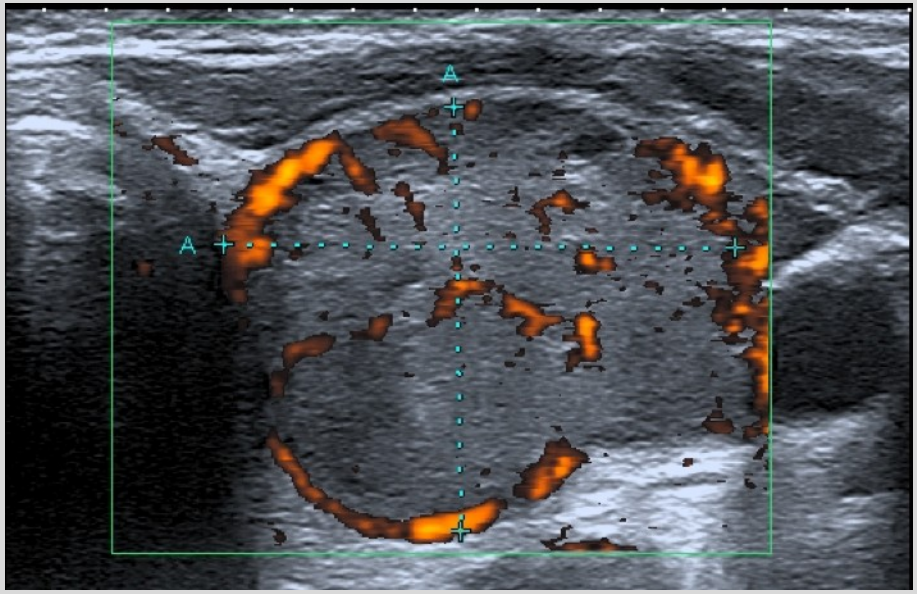




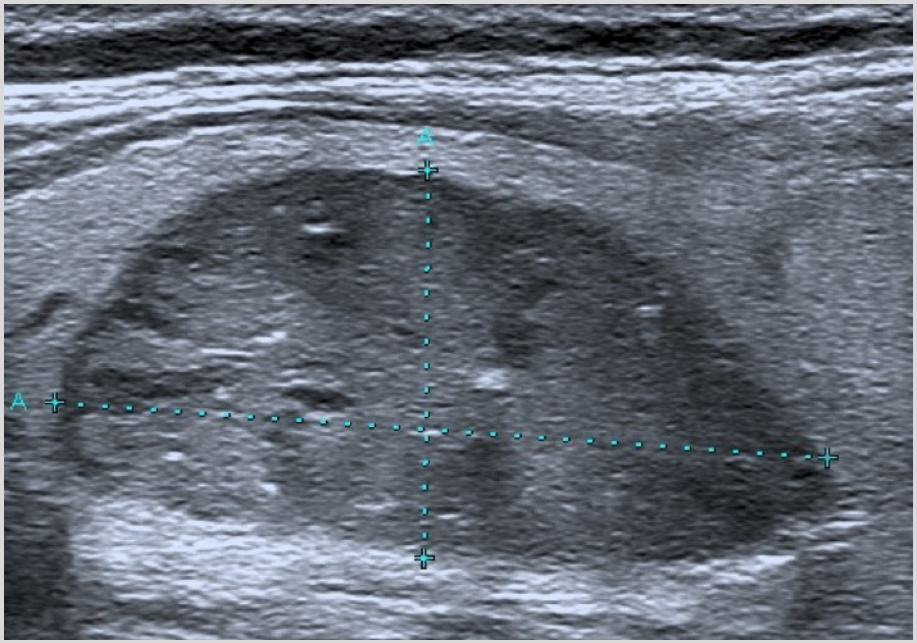


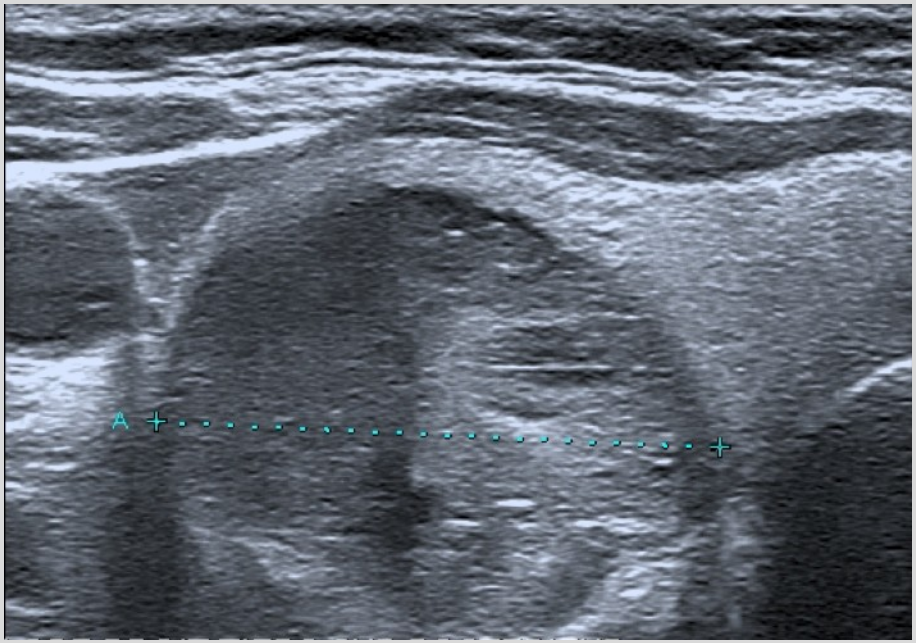
NIFTP
34x33x23mm
TIRADS 3
BETHESDA III

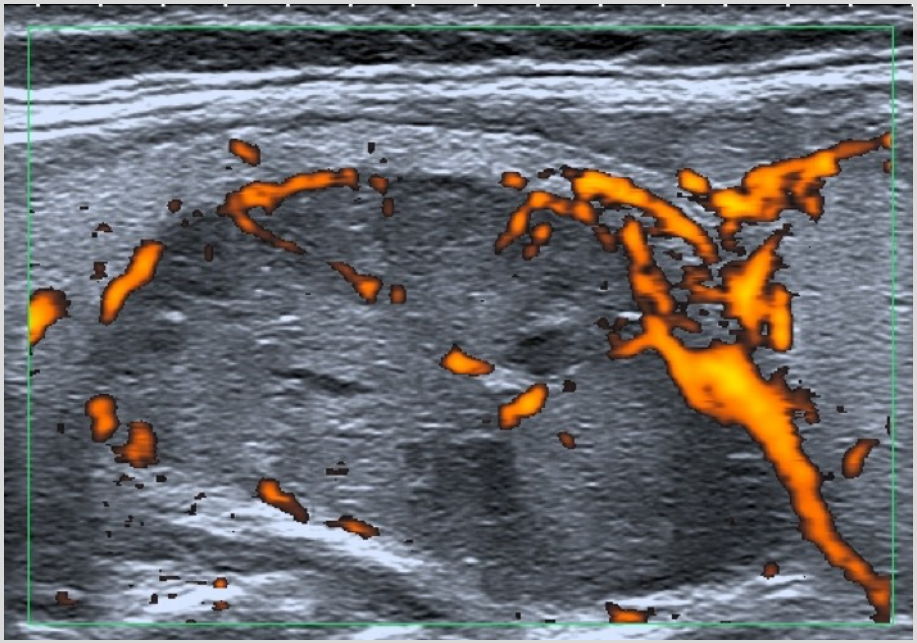




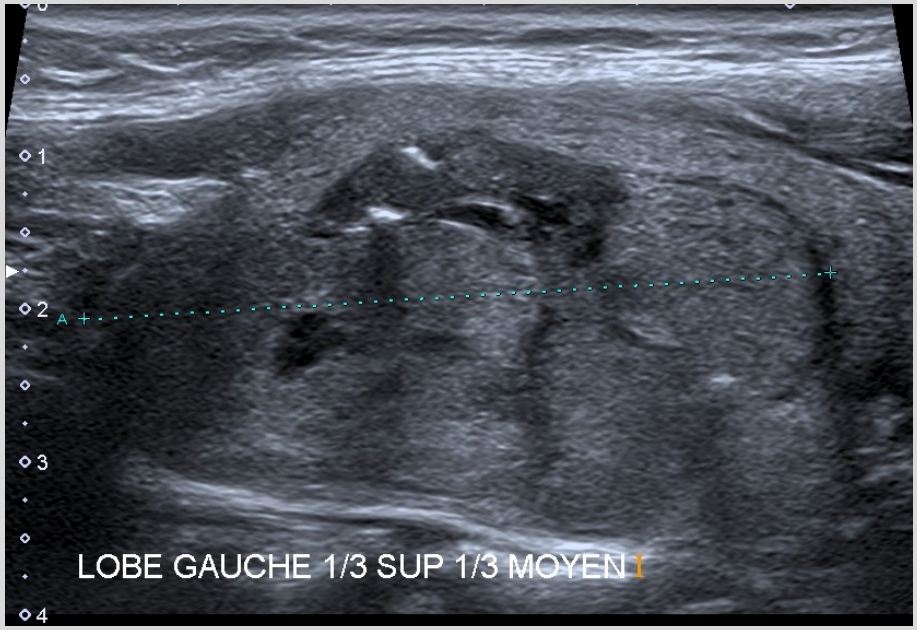
NIFTP
30x21x17mm
TIRADS 4A
BETHESDA III

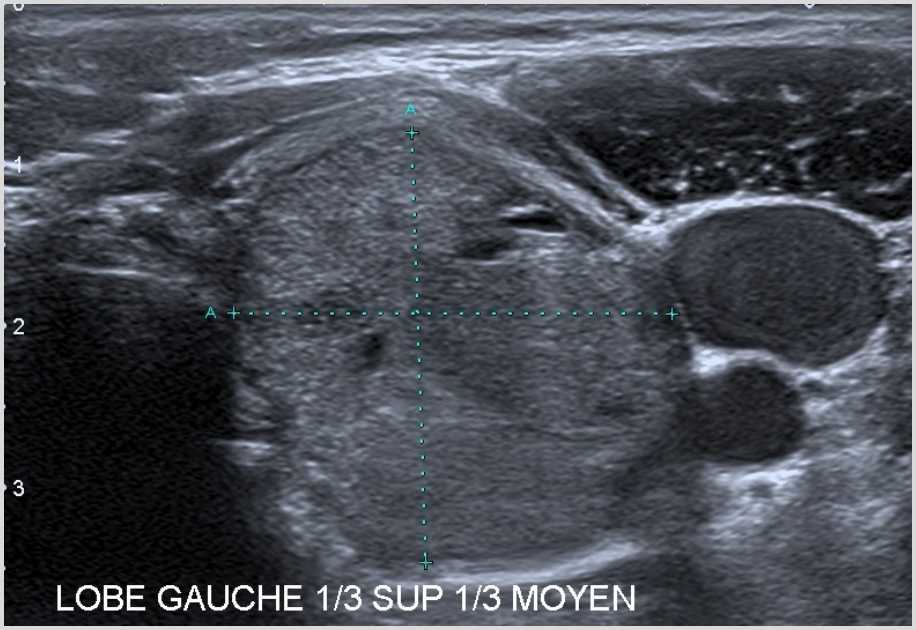


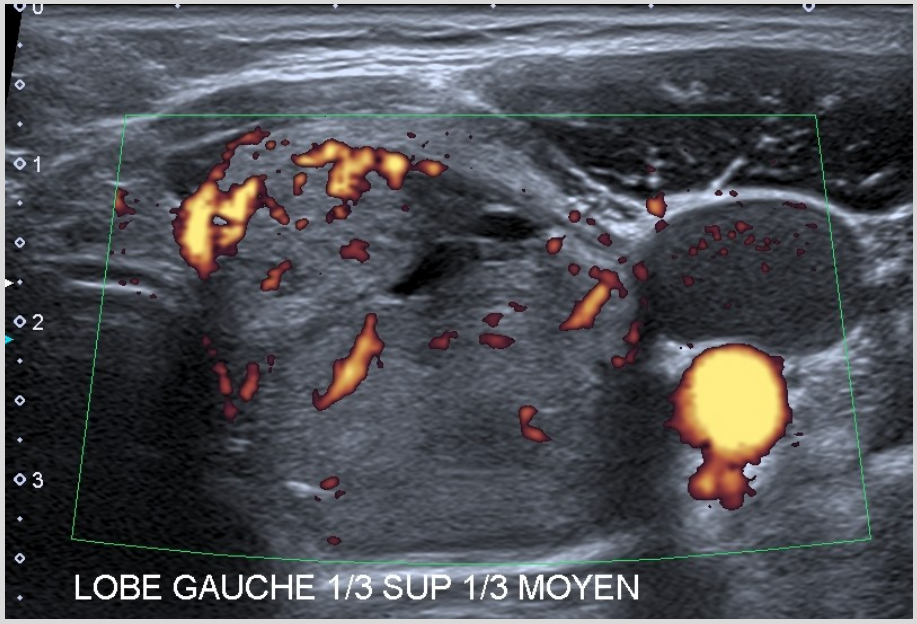




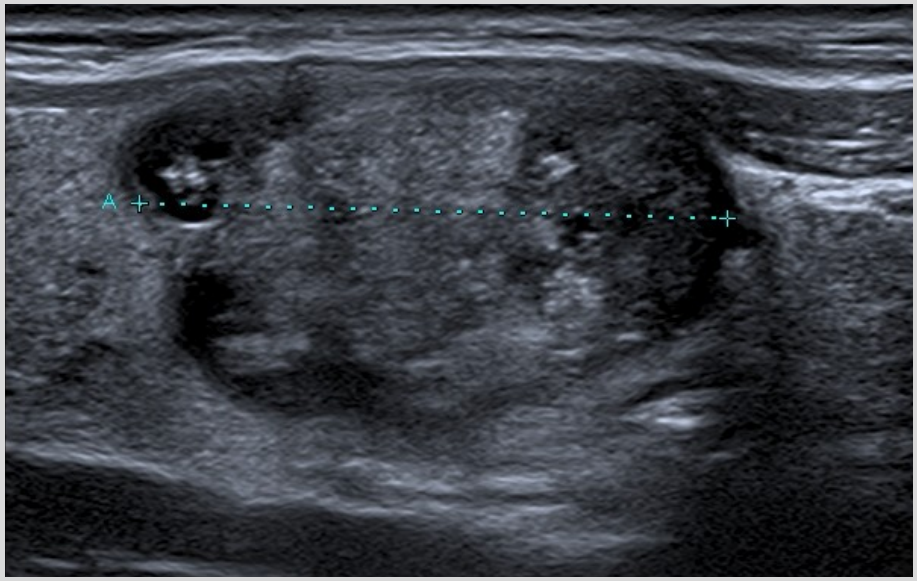
NIFTP
31x23x16mm
TIRADS 4A
BETHESDA IV

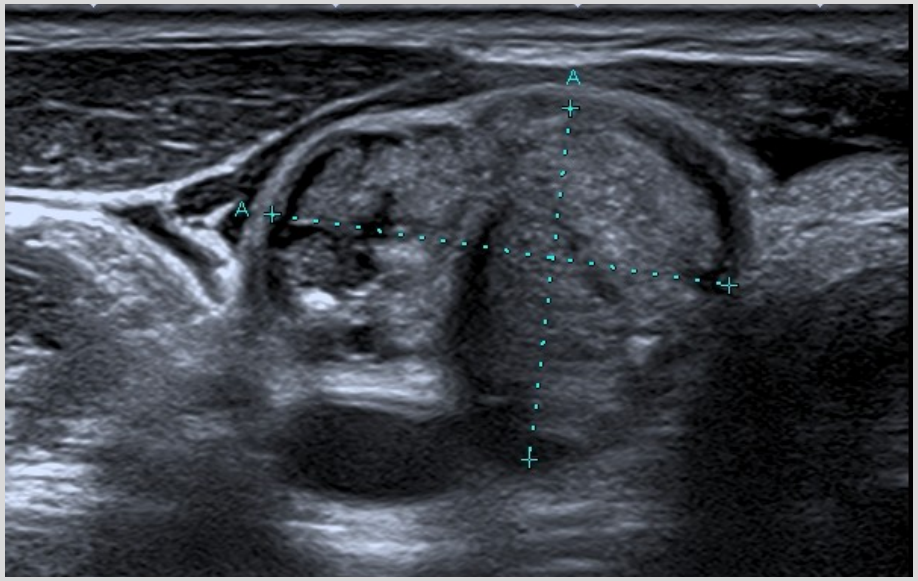


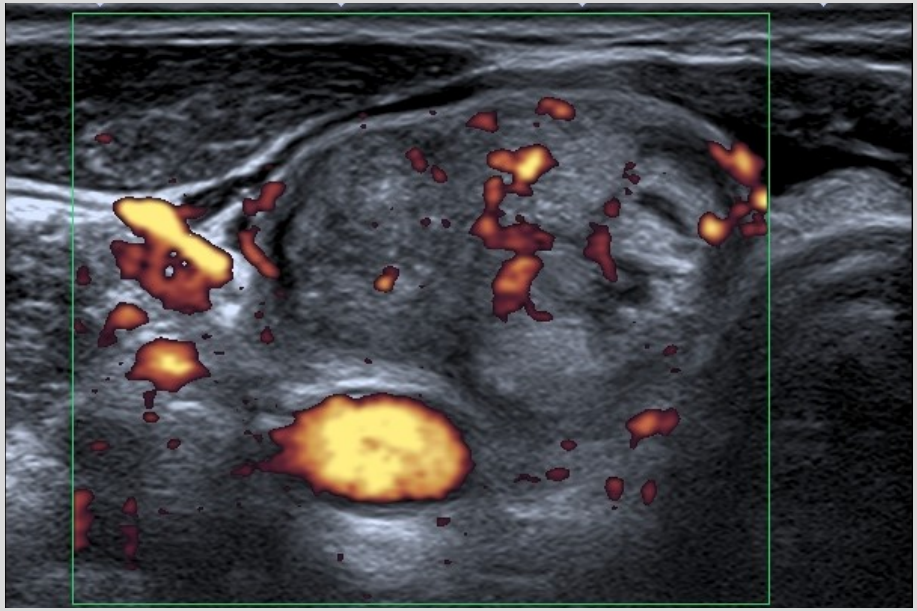




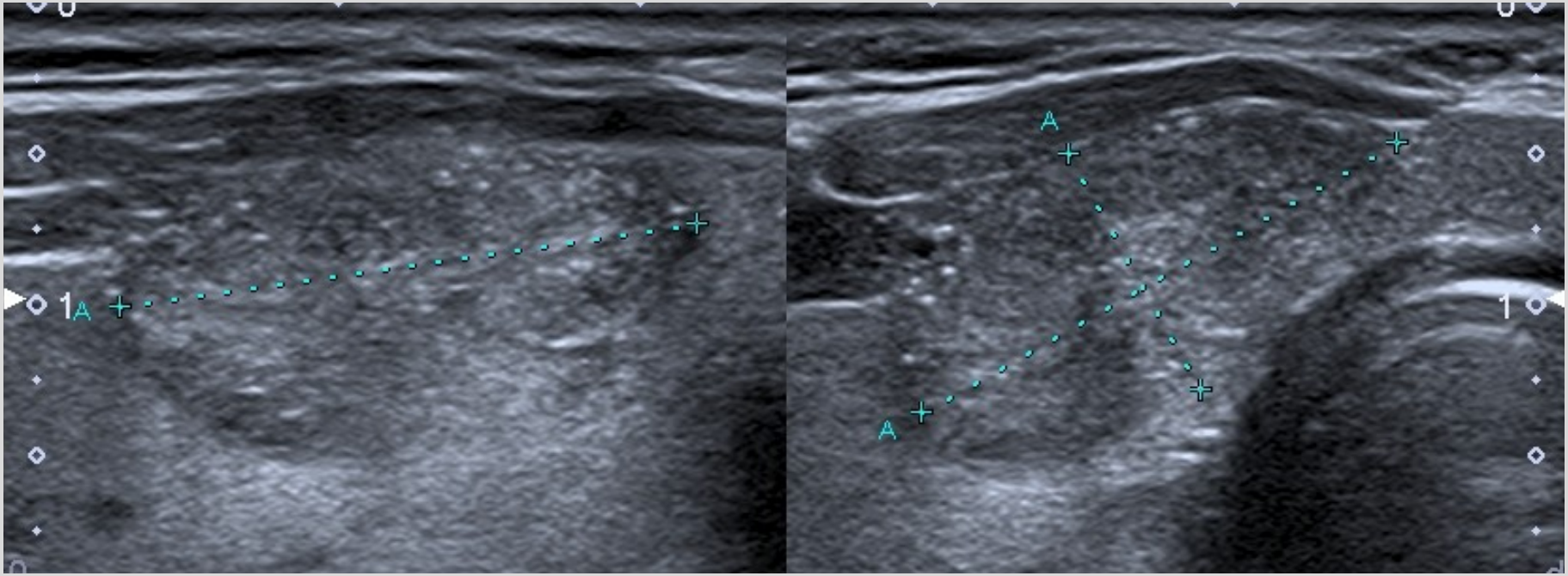
CPFV
49x27x27mm
TIRADS 4A
BETHESDA III

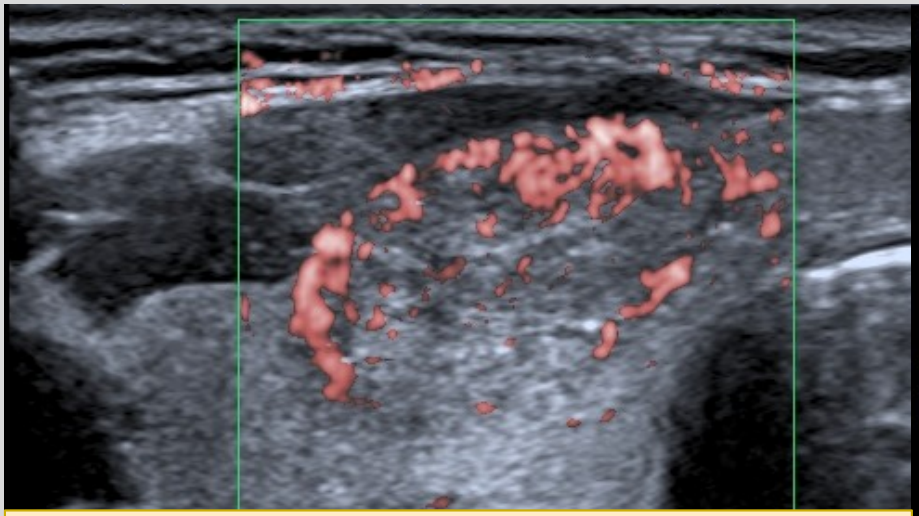




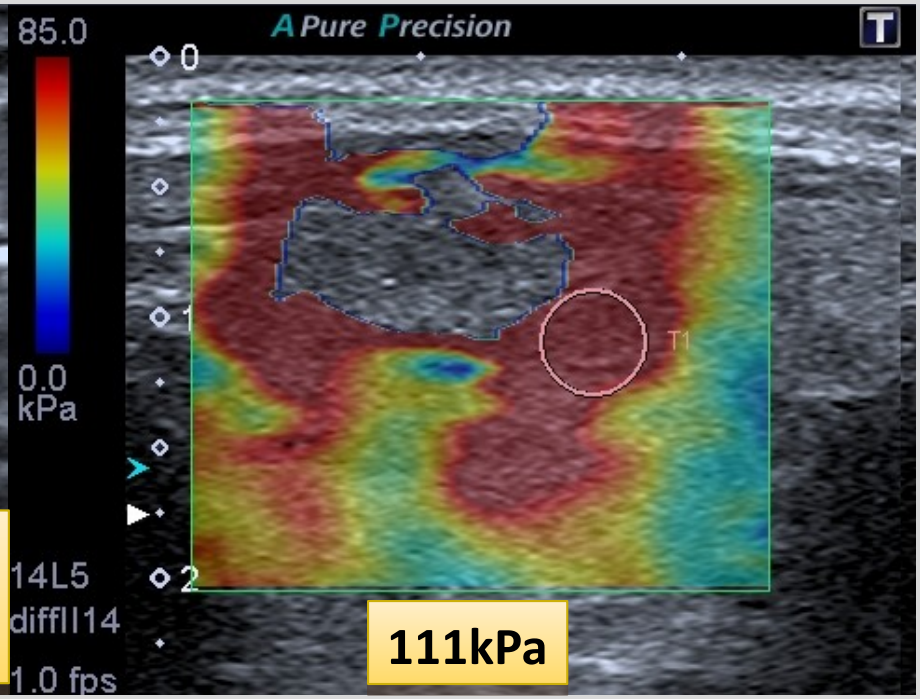


CPFV
24x19x15mm
TIRADS 4B
BETHESDA V





CPFV 19x18x9mm
TIRADS 4B - BETHESDA V



111kPa

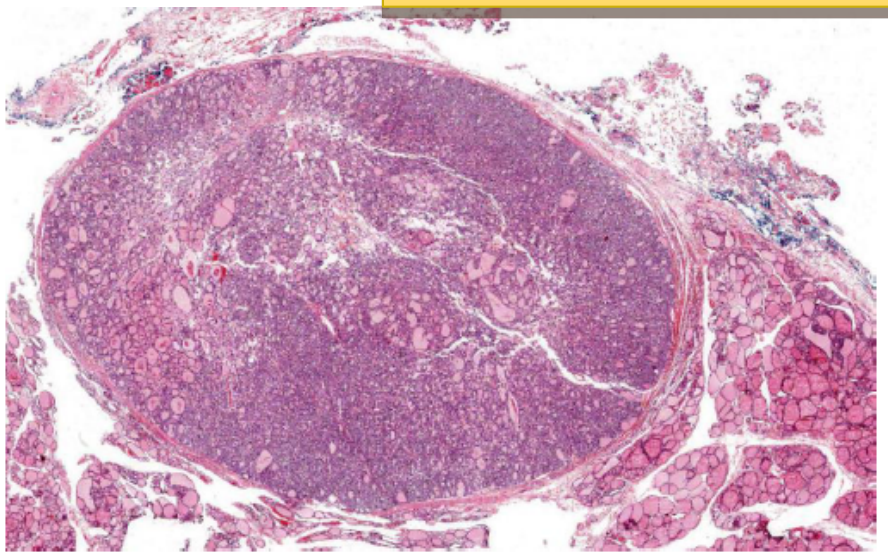
Nomenclature Revision for Encapsulated Follicular Variant of Papillary Thyroid Carcinoma

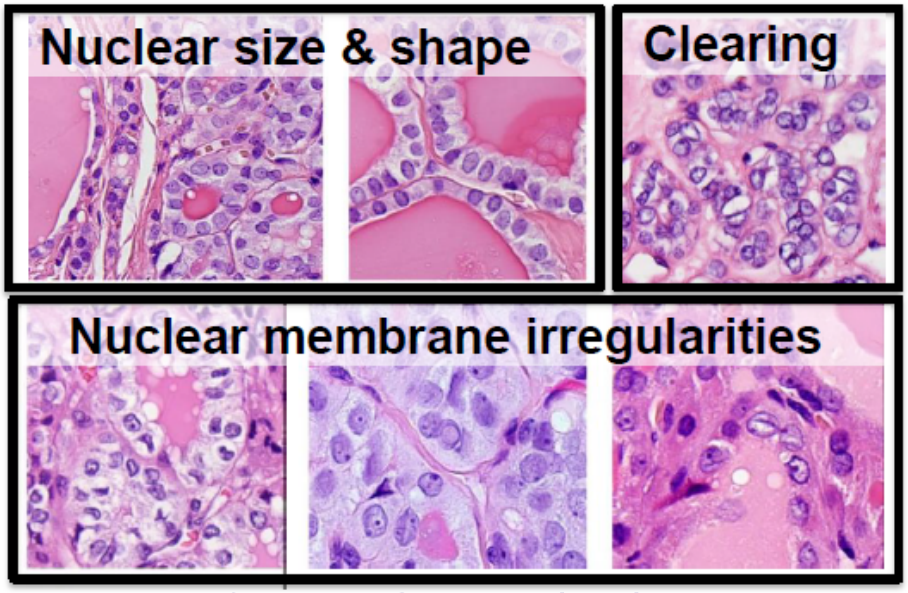
A Paradigm Shift to Reduce Overtreatment of Indolent Tumors

DIAPOSITIVE
F. TISSIER ET L. LEENHARDT

Diagnostic criteria for NIFTP

1. Encapsulation or clear demarcation
2. Follicular growth pattern with:
   - <1% papillae
   - No psammoma bodies
   - <30% solid/trabecular/insular
3. Nuclear features of PTC:
   - Enlargement, crowding/overlapping
   - Elongation
   - Irregular contours
   - Grooves
   - Pseudoinclusions
   - Chromatin clearing
4. No vascular or capsular invasion
5. No tumor necrosis or high mitotic activity





Nikiforov, IGR, 18/03/2016

THYROID
Volume 26, Number 7, 2016
Mary Ann Liebert, Inc.
DOI: 10.1089/thy.2016.0244

EDITORIAL

Follicular Variant of Papillary Thyroid Carcinoma: Hybrid or Mixture?

Gilbert H. Daniels

CONCLUSION

- **Les NIFTP** sont:
  - Pour la plupart des nodules TIRADS 4A
    - A prédominance solide et hétérogènes
    - Avec un halo fin
    - Sans macrocalcifications
    - Et une vascularisation mixte d'abondance moyenne
  - Rarement des TIRADS 3
  - Jamais des TIRADS 4B ou 5

- **Les CPFV encapsulés infiltrants** sont des nodules TIRADS 4A ou 4B. Rechercher macrocalcifications et halo dans les 4A.

- **Les CPFV invasifs** sont des nodules TIRADS 4B ou 5.