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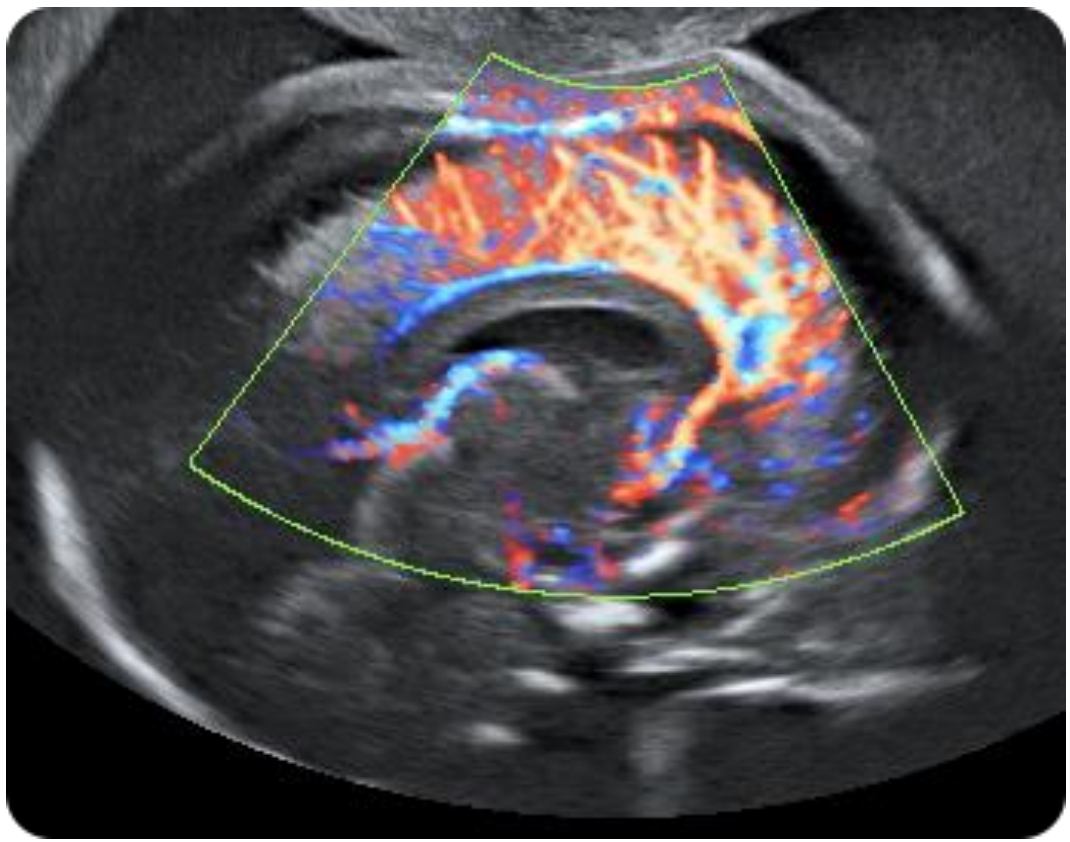
VIETNAM - FRANCE - ASIA - PACIFIC
CONFERENCE ON OBSTETRICS AND GYNECOLOGY
Ho Chi Minh City, May 19th - 20th, 2016

16th

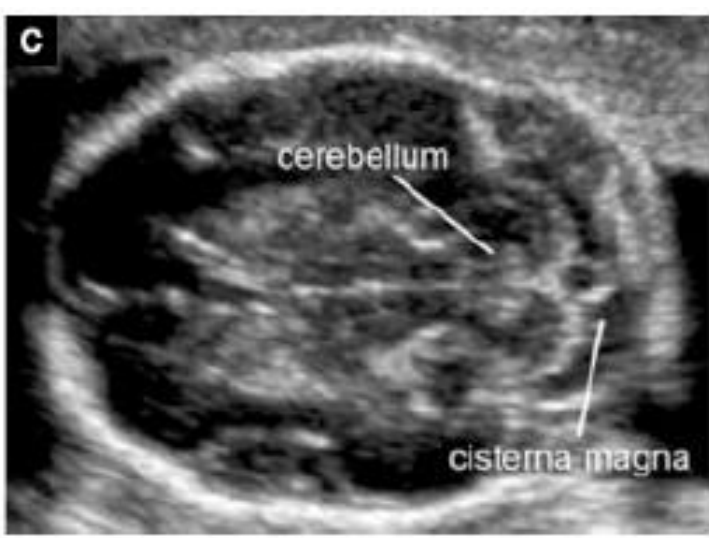
Brain examination

Laurent J SALOMON & Anne-Elodie MILLISCHER



Special thanks to JP Bault

SONOGRAPHIC APPEARANCE OF FETAL ANATOMY: (N=Normal; Ab=Abnormal*; NV=Not visualized) Gray=optional	N	Ab*	NV
Head			
Shape			
Cavum septi pellucidi			
Midline falx			
Thalami			
Lateral ventricle			
Cerebellum			
Cisterna magna			



Laurent J Salomon

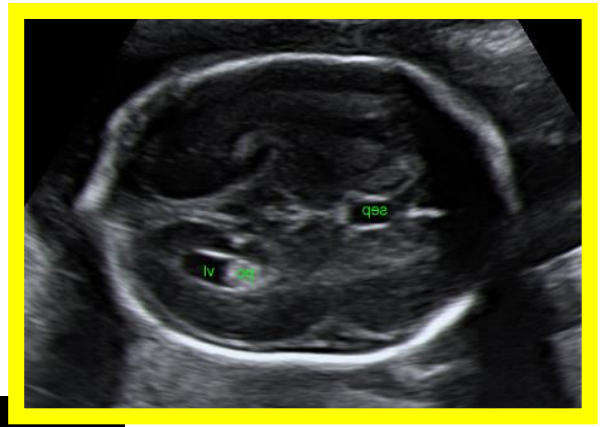
Ultrasound Obstet Gynecol 2007; **29**: 109–116
Published online in Wiley InterScience (www.interscience.wiley.com). **DOI:** 10.1002/uog.3909

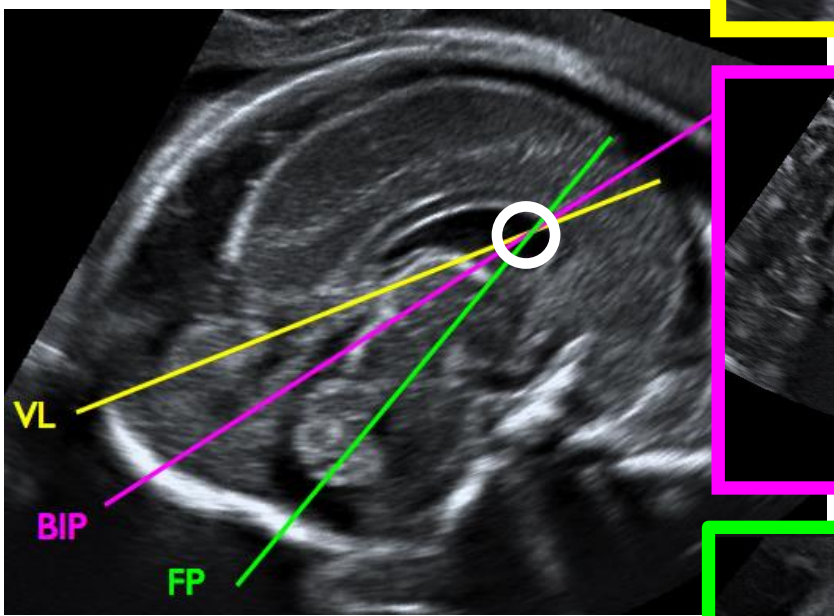
THE INTERNATIONAL SOCIETY OF
ULTRASOUND
in Obstetrics & Gynecology

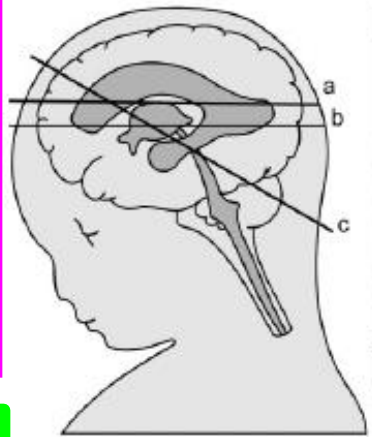
GUIDELINES

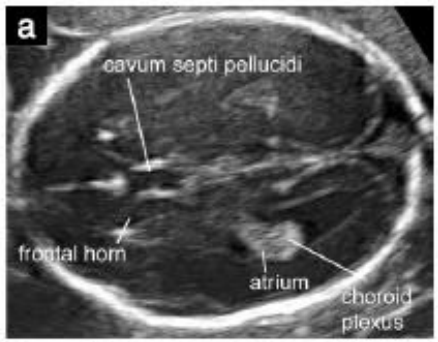
Sonographic examination of the fetal central nervous system: guidelines for performing the 'basic examination' and the 'fetal neurosonogram'

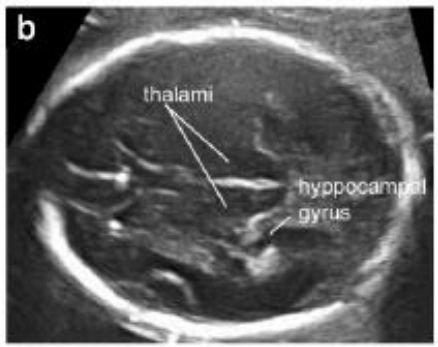
Axial views

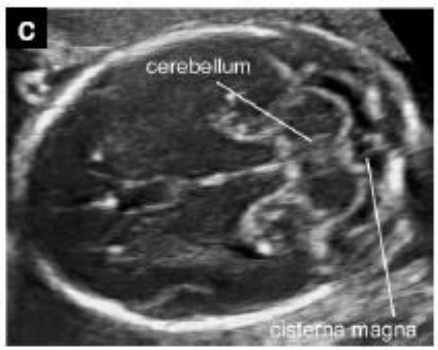




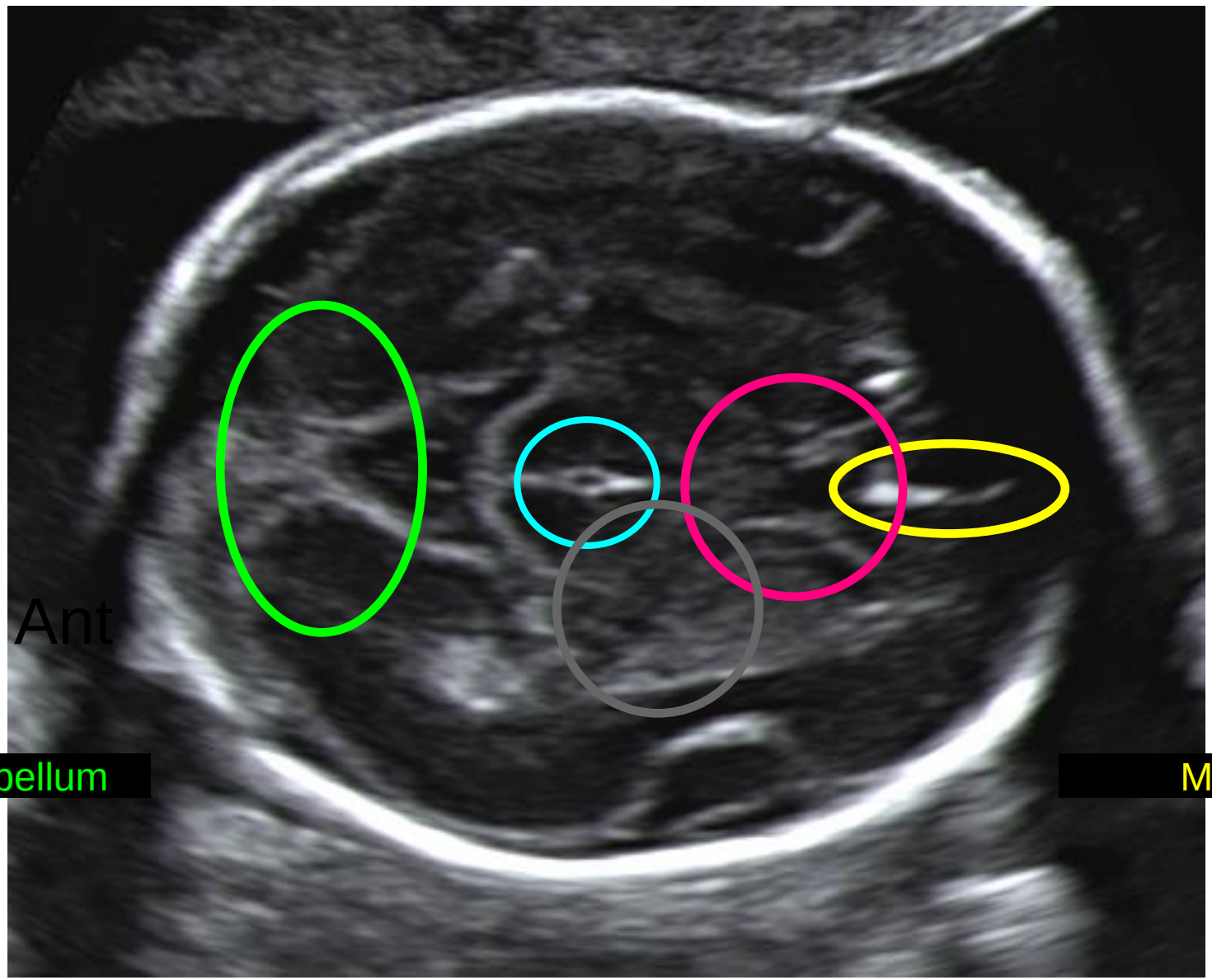






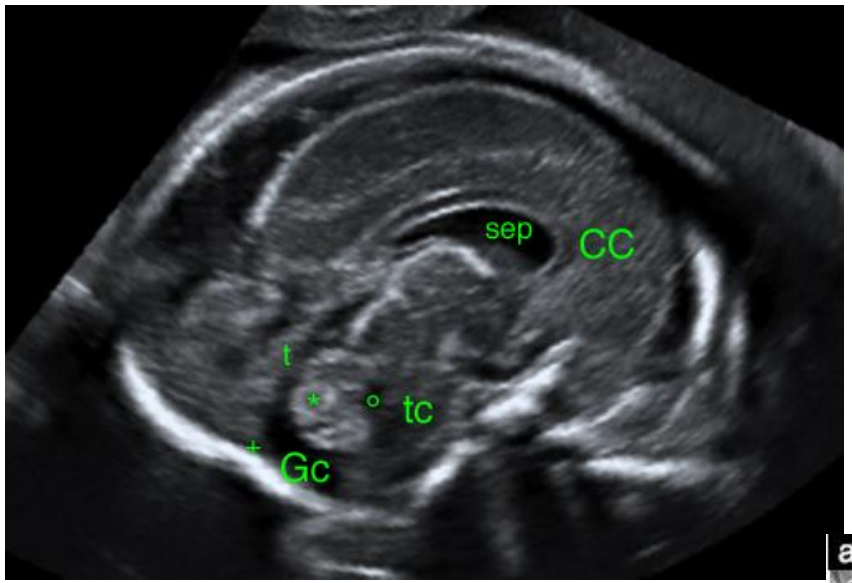


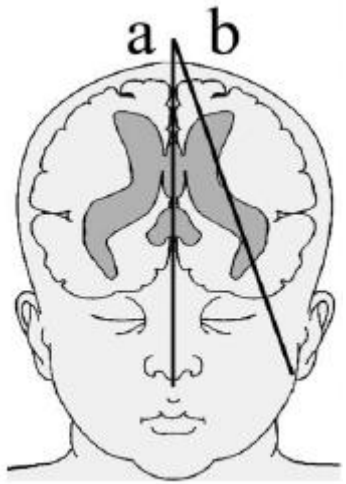
Images © JP Bault

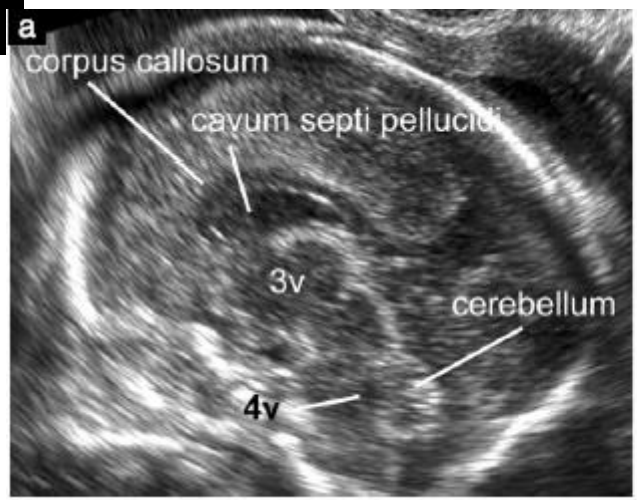


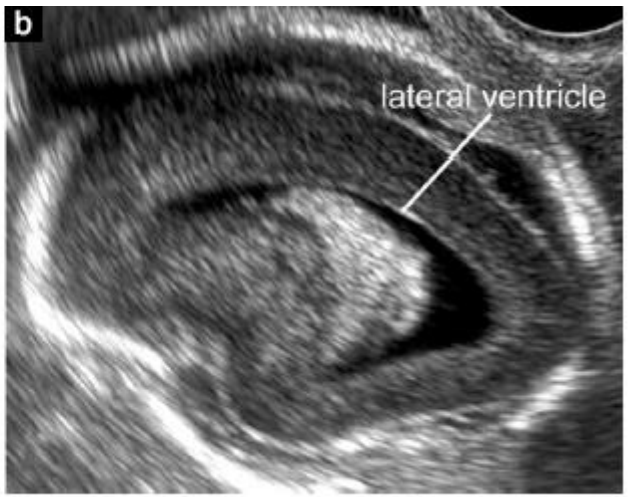
Laurent J Salomon

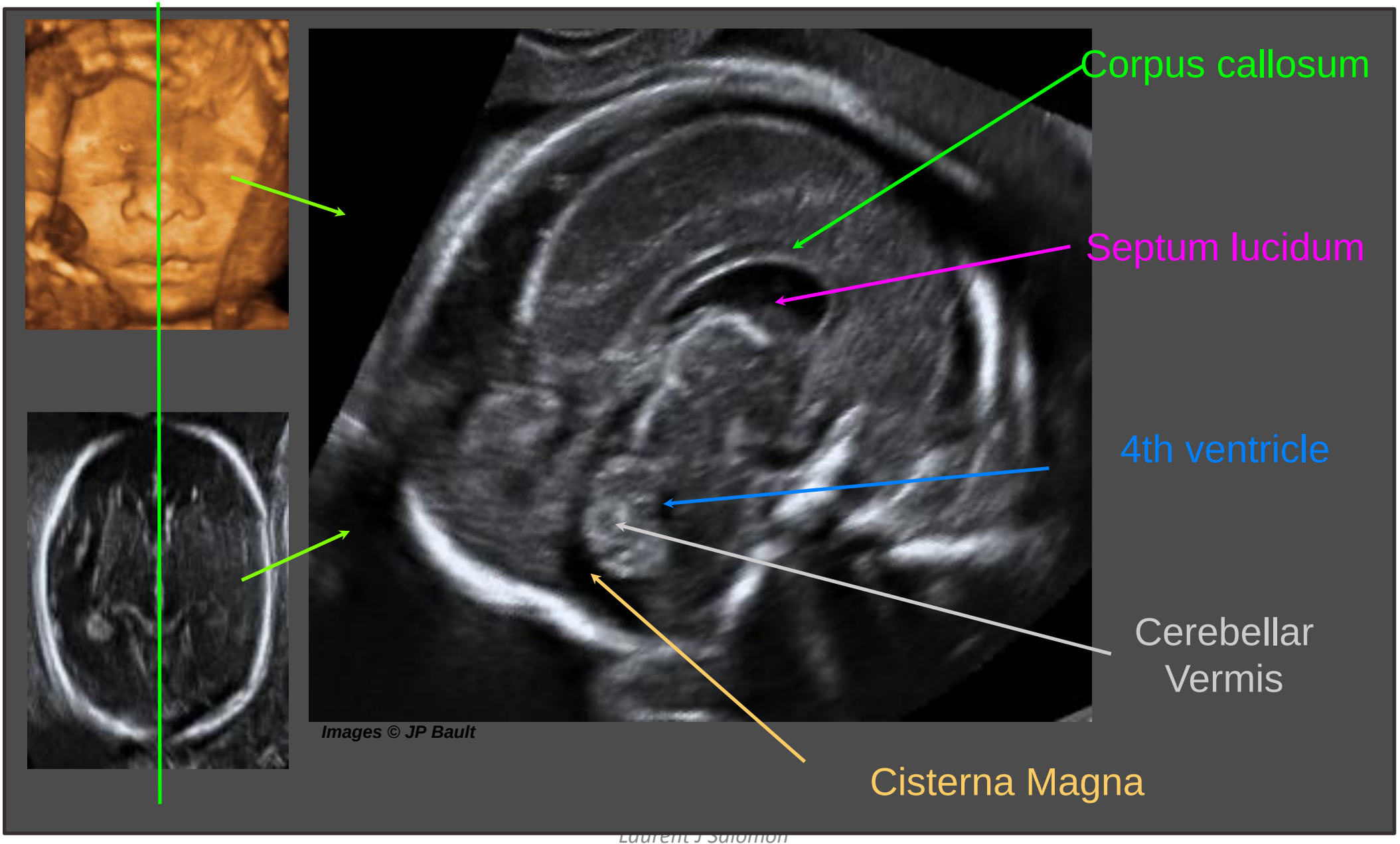
Sagittal views



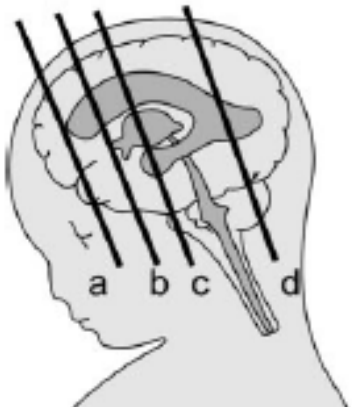


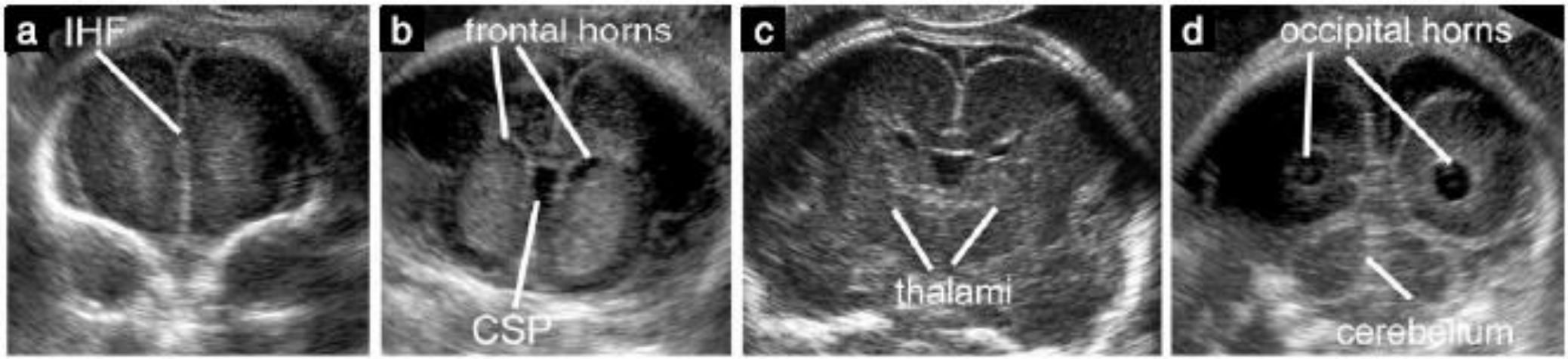


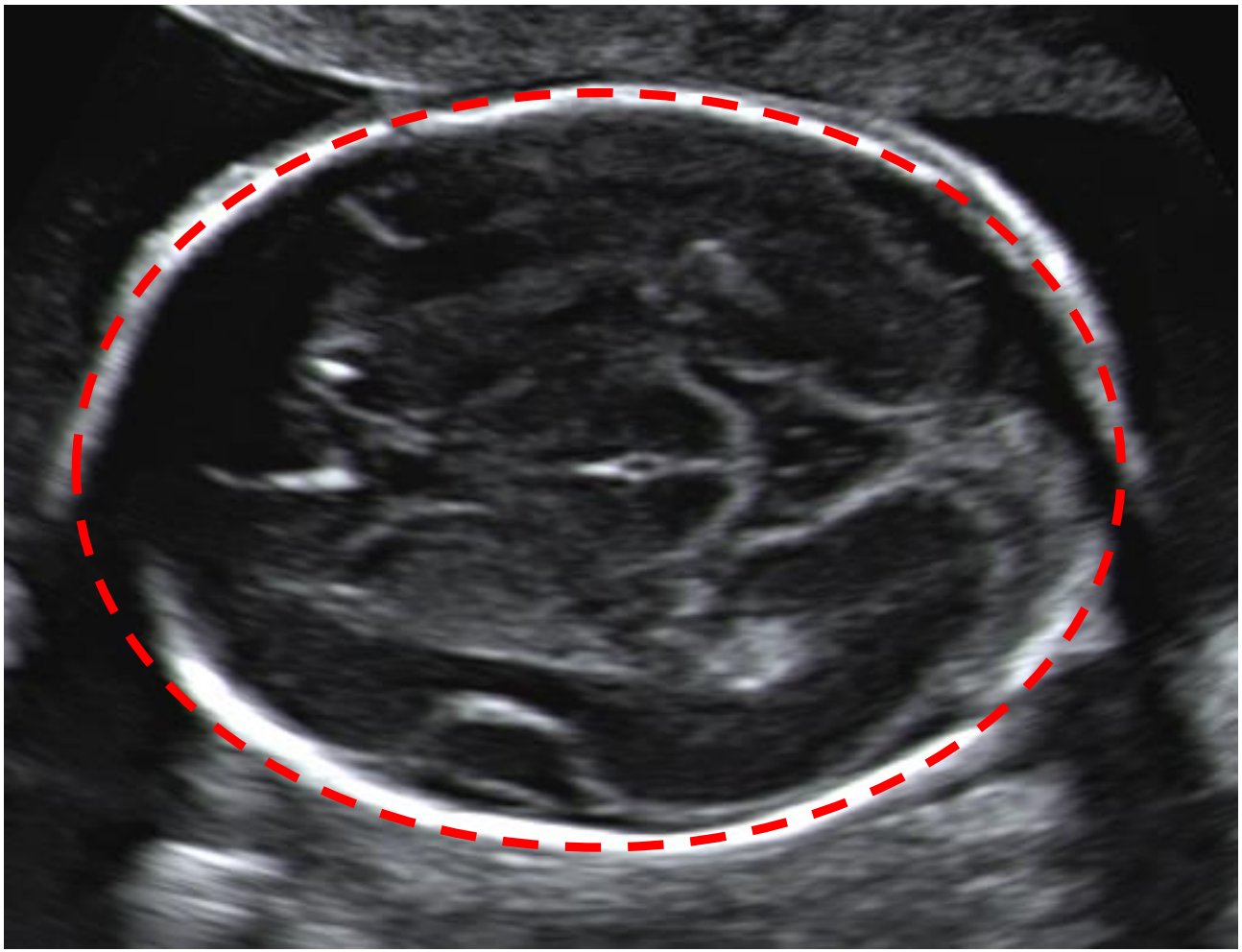



Corpus callosum
Septum lucidum
4th ventricle
Cerebellar Vermis
Cisterna Magna
Images © JP Bault

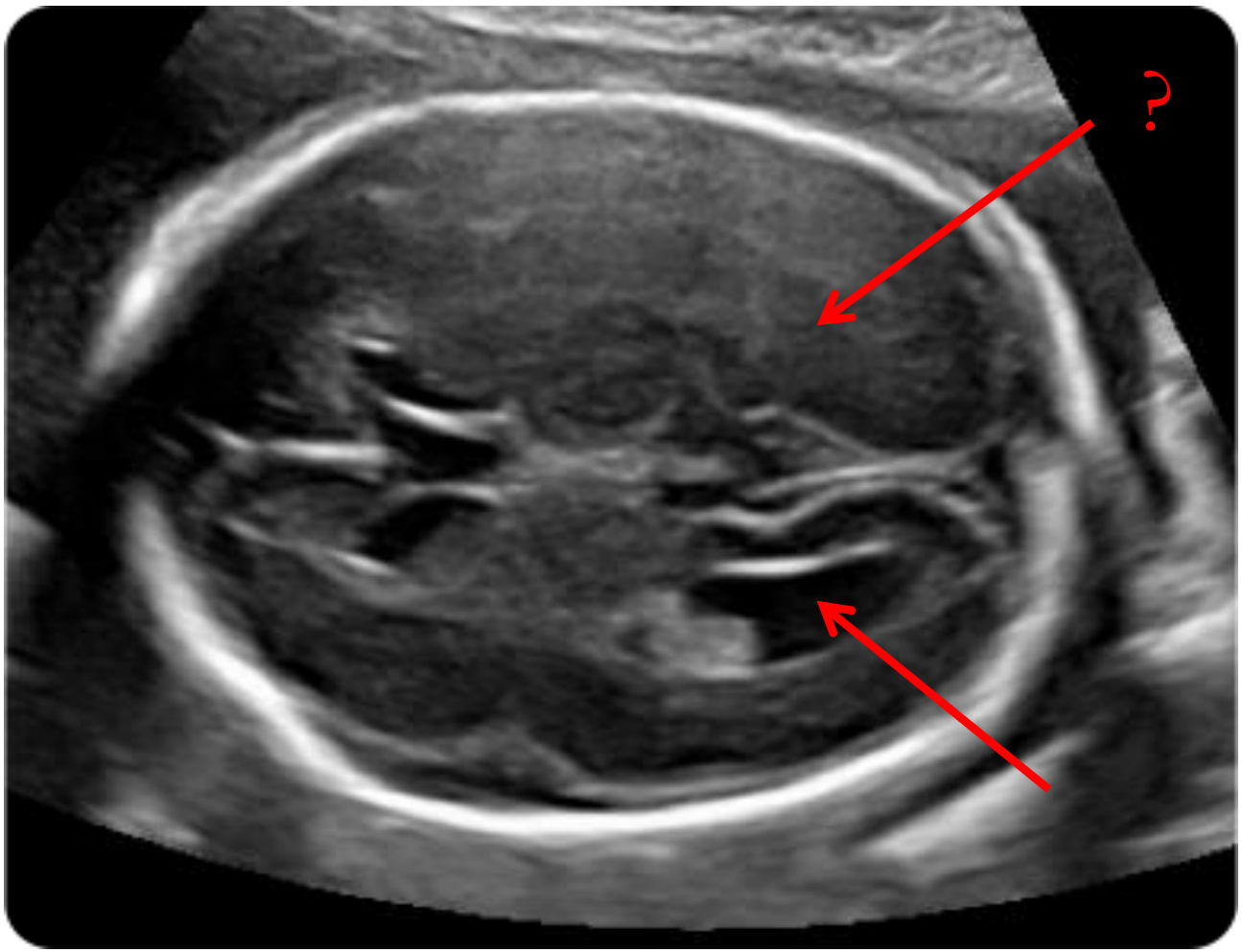
Coronal / Frontal views



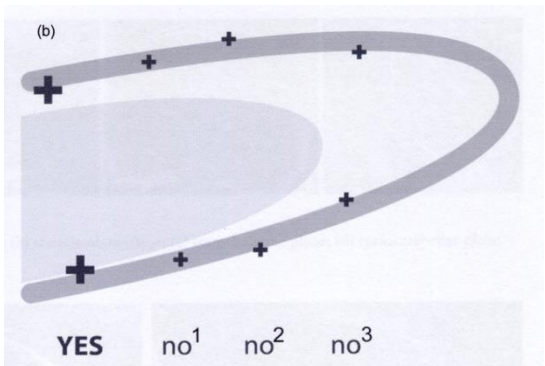


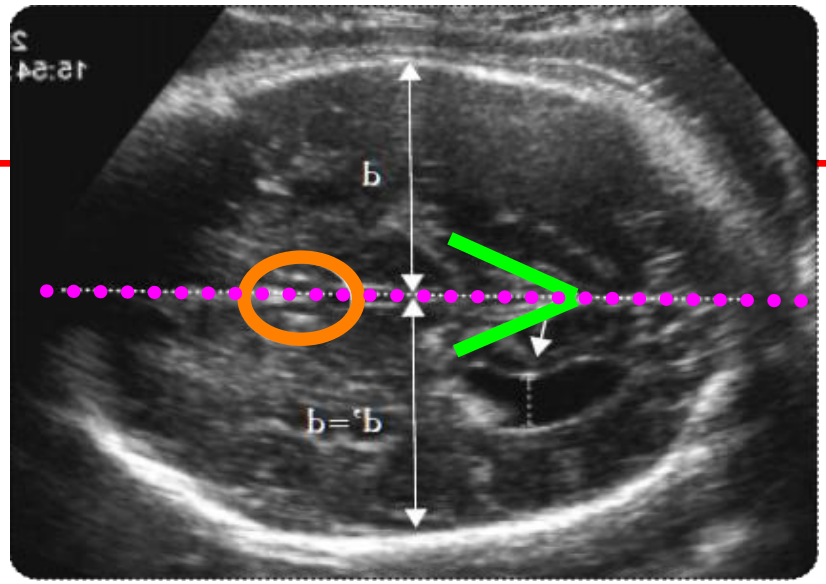


- Skull :
  - size,
  - shape,
  - integrity
  - and bone density



- Lateral Ventricles:
  - size,
  - shape,
  - walls
  - X 2 ++





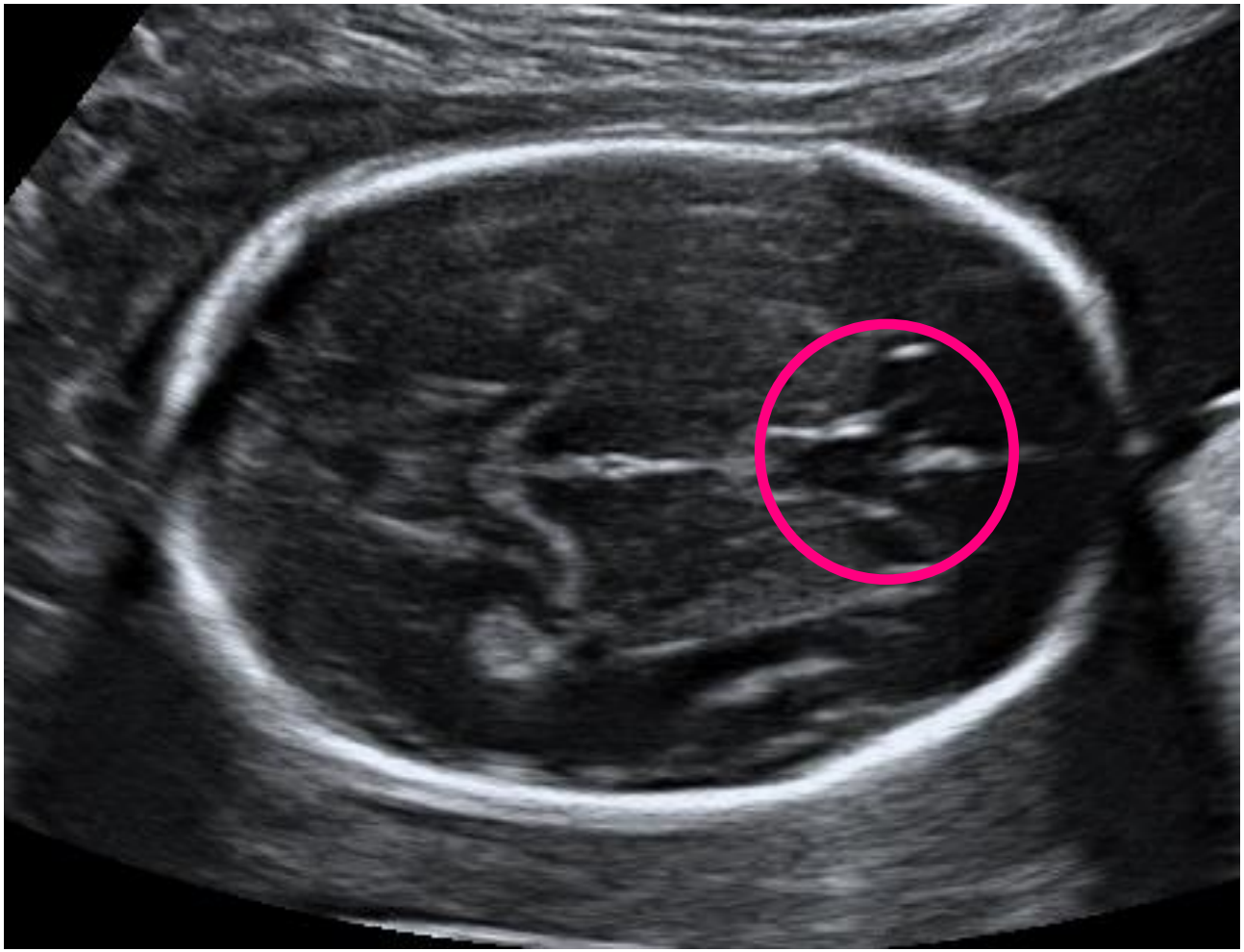
ISUOG :Guidelines Ultrasound Obstet Gynecol 2007

Criterion	*Score*	*Anatomical/technical requirements*
Primary criteria		
1. Strict axial plane	0–2	1a. Midline structures equidistant from proximal and distal calvarial margins 1b. Midline perpendicular to ultrasound beam
2. Adequate anatomical level	0–1	Anterior landmark: cavum septi pellucidi or fornix columns Posterior landmark: fluid-filled triangular V-shape of the ambient cistern
3. Location of the atrium	0–1	Measurement performed opposite the internal parieto-occipital sulcus
Secondary criteria		
4. Caliper placement	0–2	4a. Measurement perpendicular to inner and outer borders of the ventricle 4b. 'On to on' measurement (junction of ventricular lumen and ventricular wall)
5. Adequate image size	0–1	Axial transventricular plane occupying the whole screen with visualization of both proximal and distal calvarial margins

Maximum total score is 7.

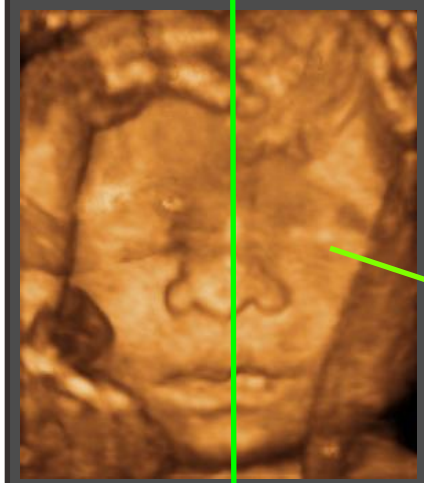
L.Guibaud : Opinion Fetal cerebral ventricular measurement and ventriculomegaly: time for procedure standardization *Ultrasound Obstet Gynecol 2009;* ***34****: 127–130*

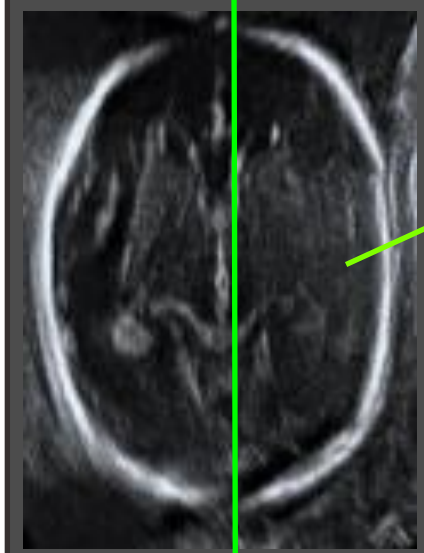
Septum lucidum



- SL:
  - size,
  - shape,
  - walls.

Septum lucidum

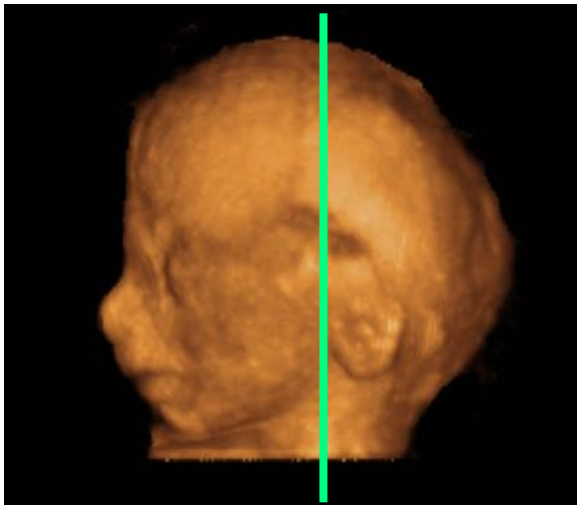


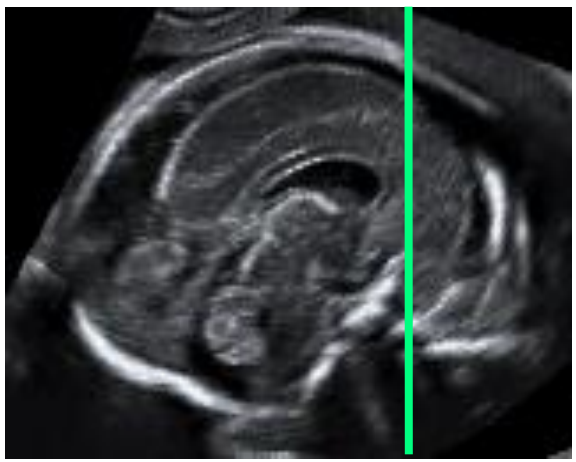


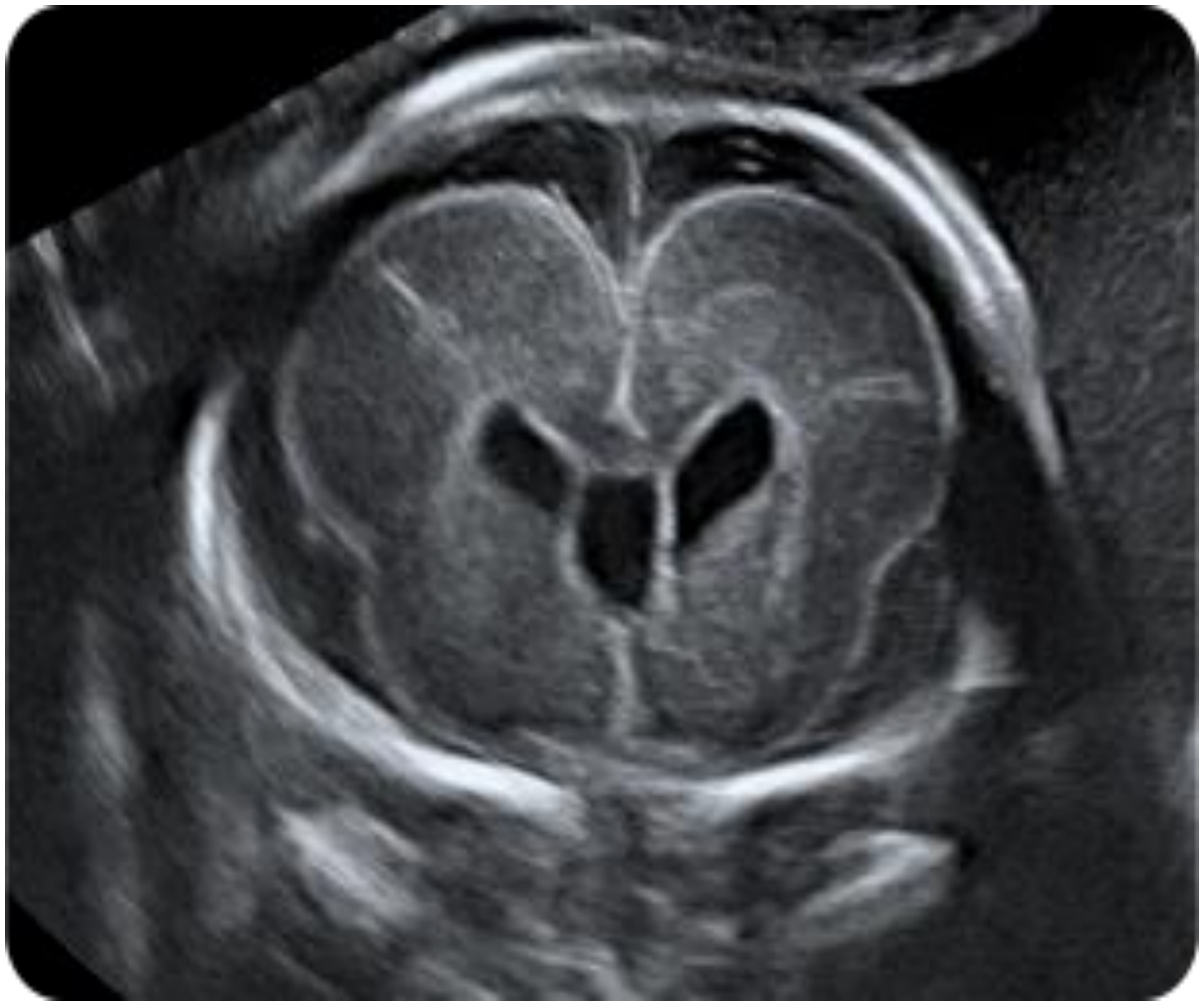
Septum lucidum

Images © JP Bault

Septum lucidum

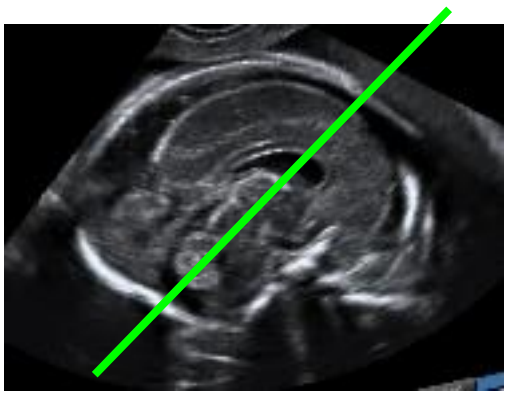




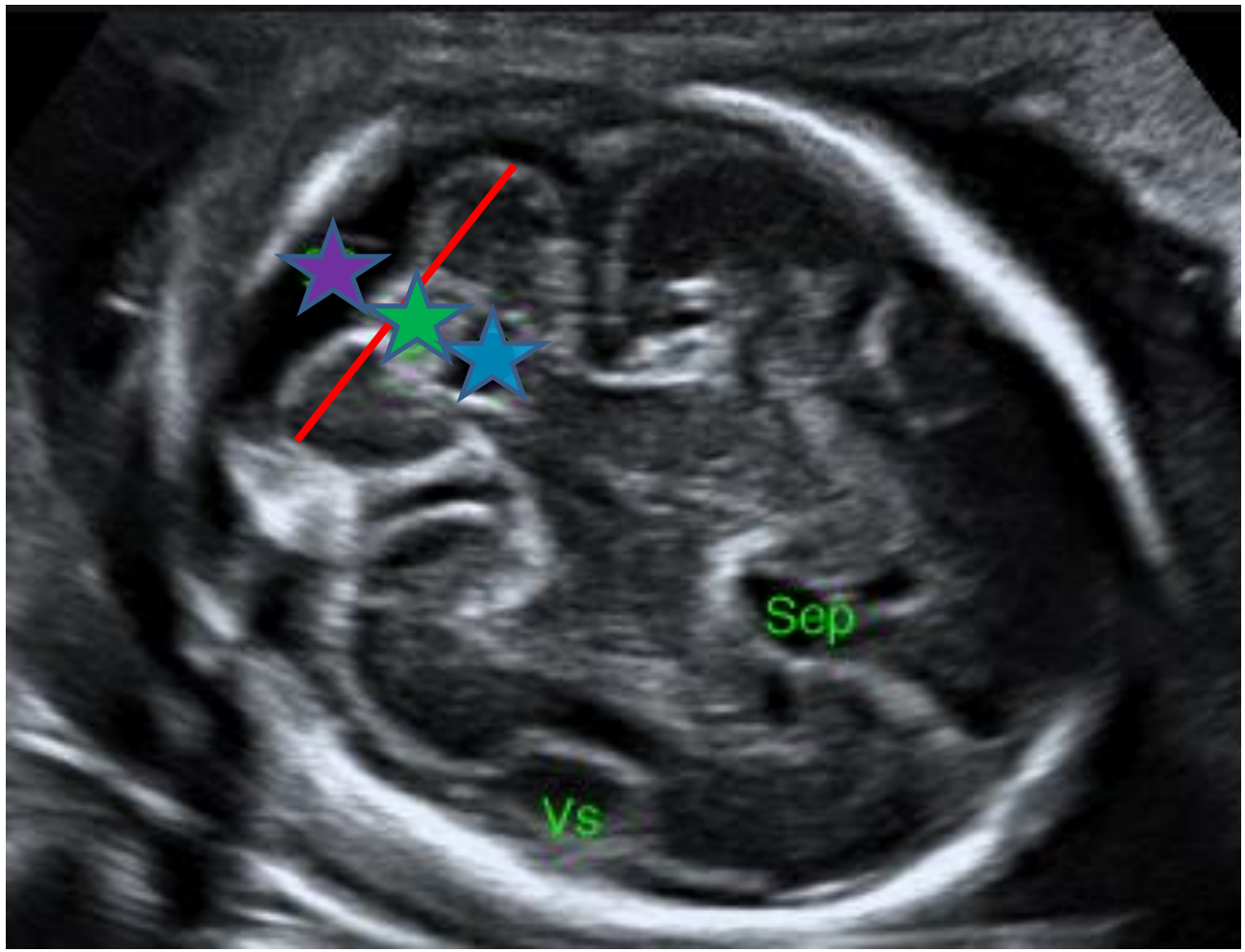


Images © JP Bault

Posterior fossa



Posterior fossa plane



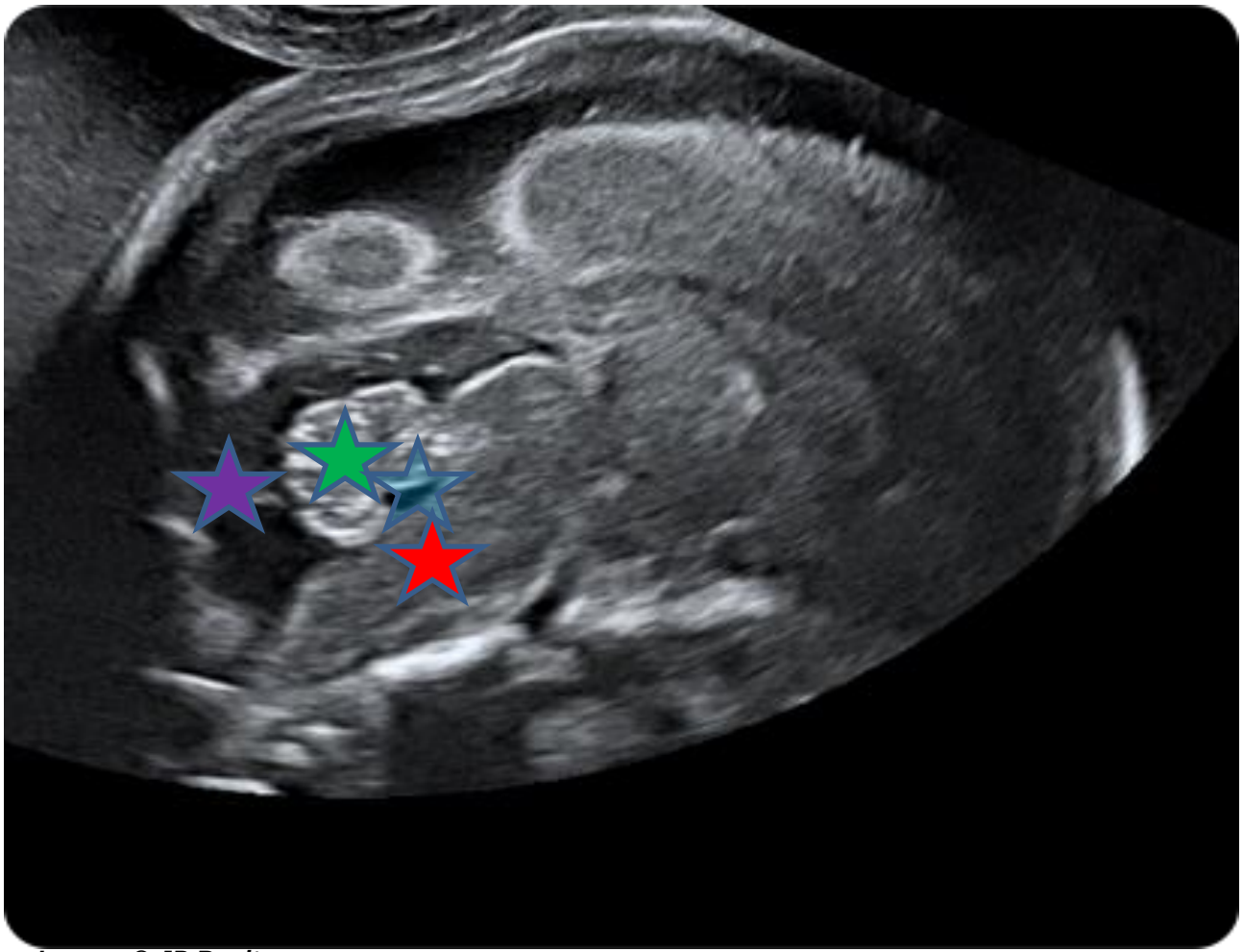
-TCD

-Vermis

-CM

-4th ventricle

Posterior fossa



Images © JP Bault

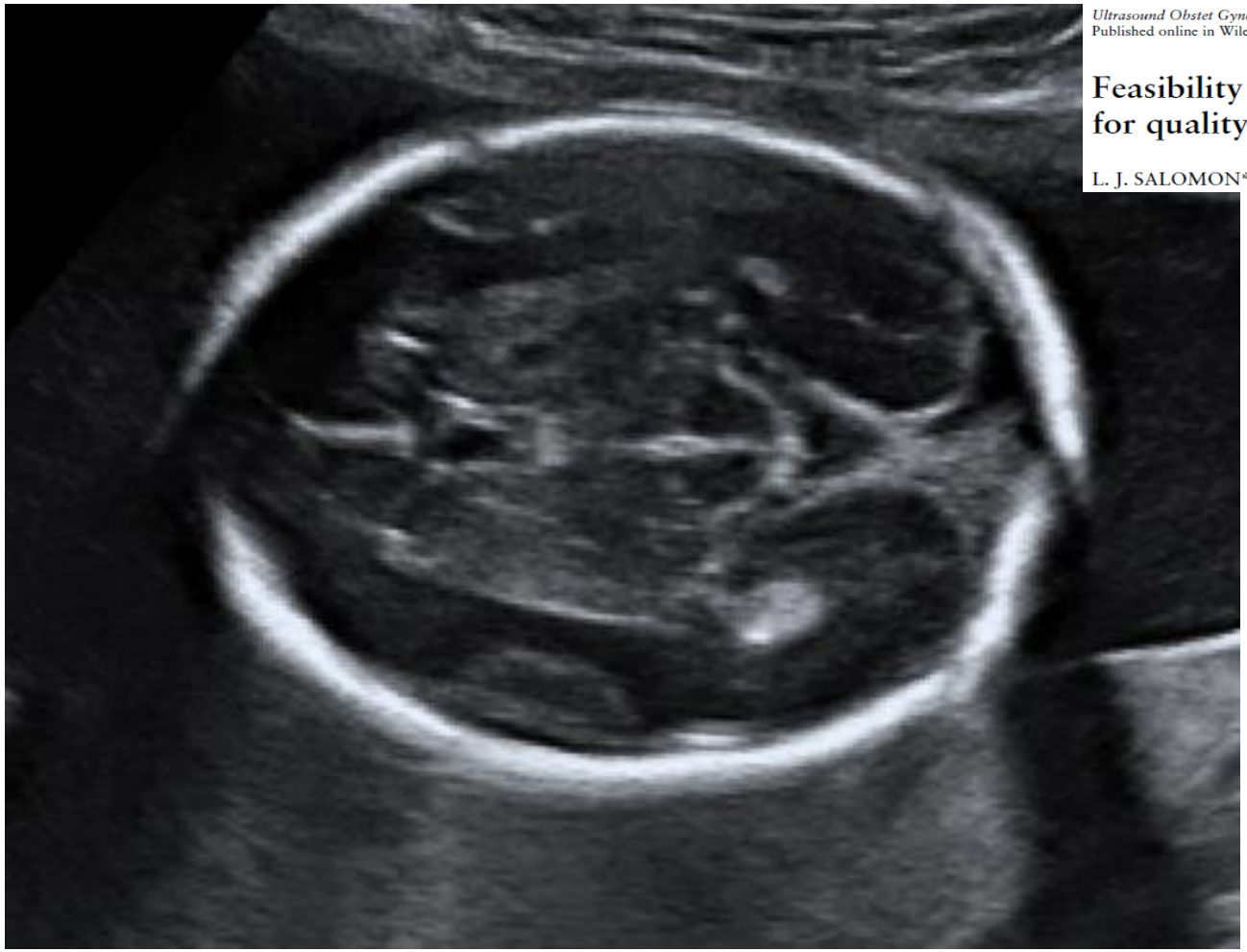
-Vermis

-CM

-4th ventricle

-Brain stem

HC / BPD measurement



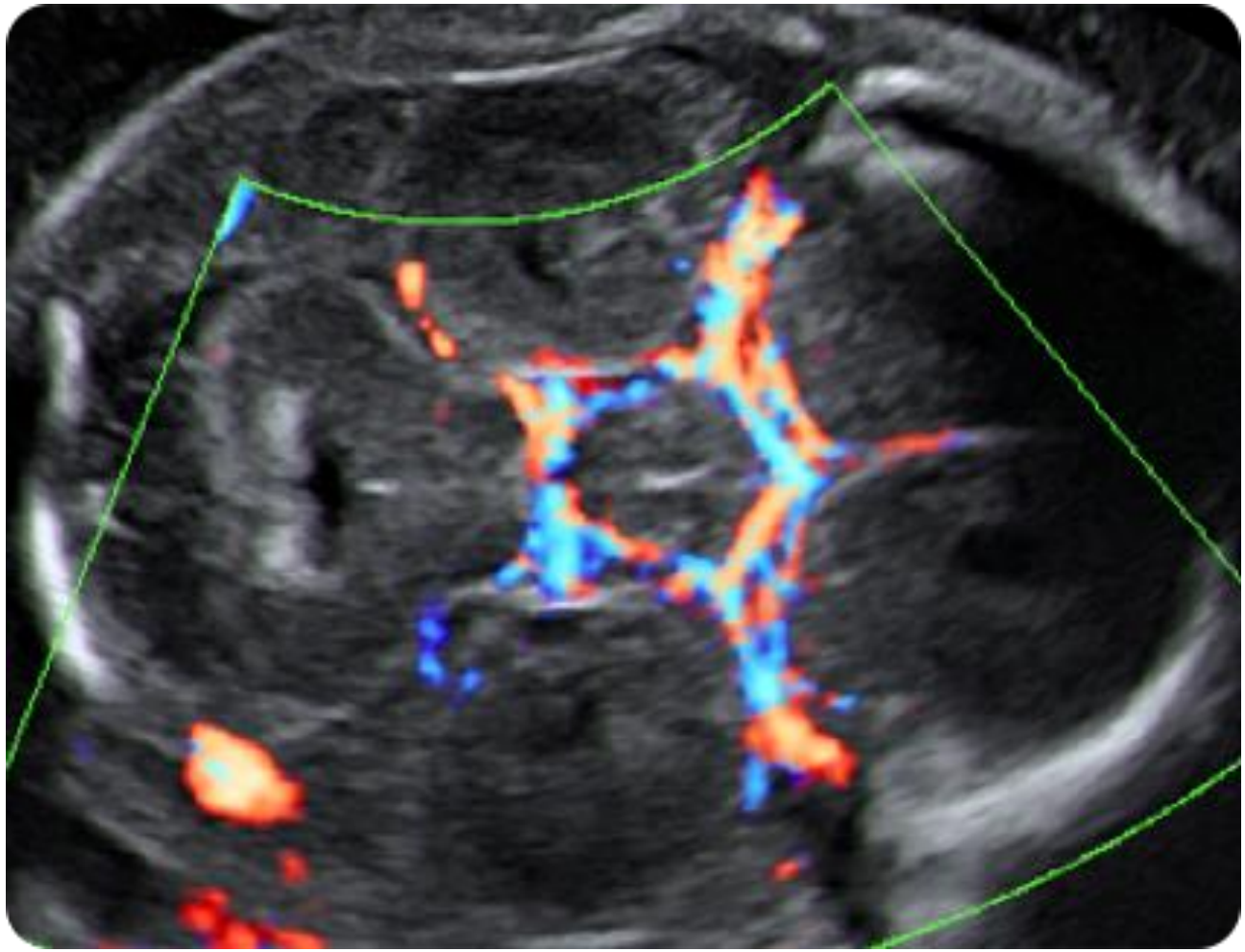
Ultrasound Obstet Gynecol 2006; **27**: 34–40
Published online in Wiley InterScience (www.interscience.wiley.com). **DOI:** 10.1002/uog.2665

Feasibility and reproducibility of an image-scoring method for quality control of fetal biometry in the second trimester

L. J. SALOMON*, J. P. BERNARD*, M. DUYME†, B. DORIS†, N. MAS† and Y. VILLE*

Cephalic
Symmetrical plane
Plane showing the thalami
Plane showing the cavum septi pellucidi
Cerebellum not visible
Head plane occupying more than half of the total image size
Calipers and dotted ellipse placed correctly

Cerebral circulation

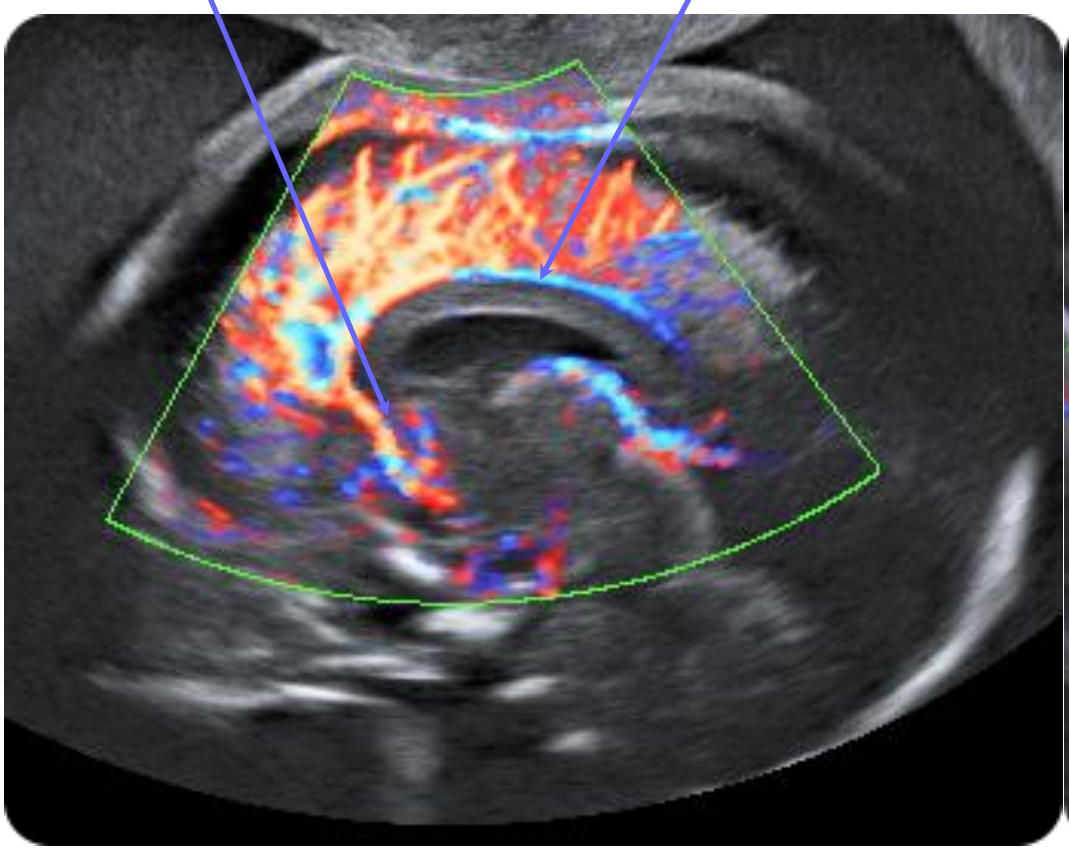


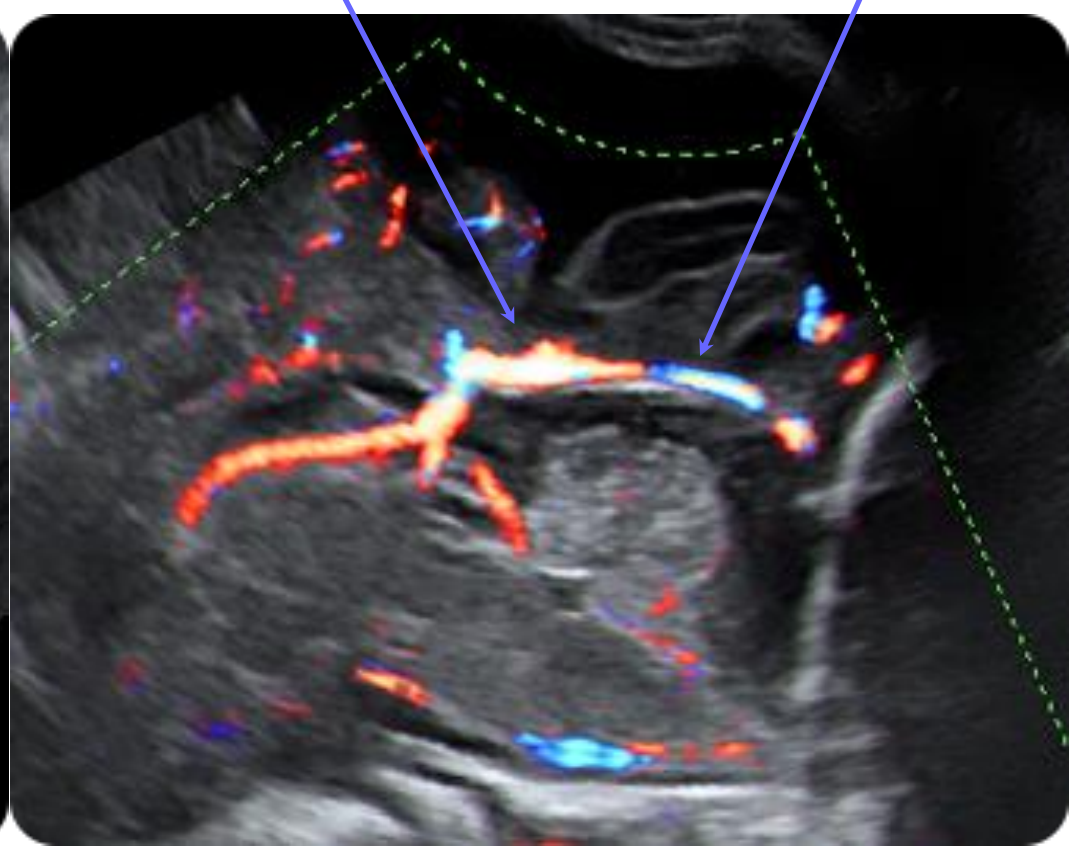
Images © JP Bault

Polygon of Willis

Cerebral circulation

Ant Cereb. Artery *Pericalosal Artery* *Gallien vein* *Straight Sinus*





Images © JP Bault

CLINICAL OBSTETRICS AND GYNECOLOGY
Volume 55, Number 1, 249–265
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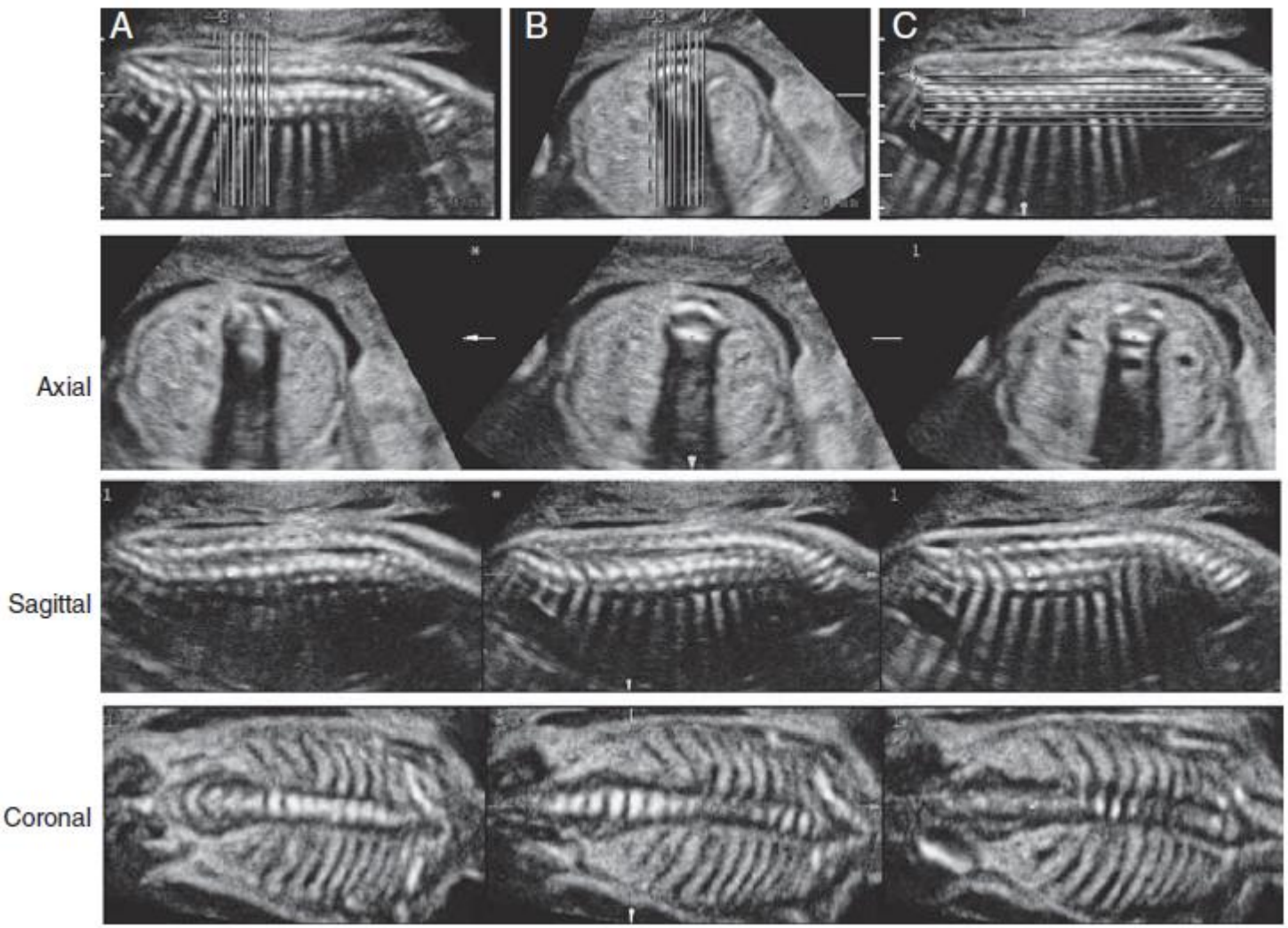
Fetal CNS Scanning—Less of a Headache Than You Think

ANA MONTEAGUDO, MD and
ILAN E. TIMOR-TRITSCH, MD



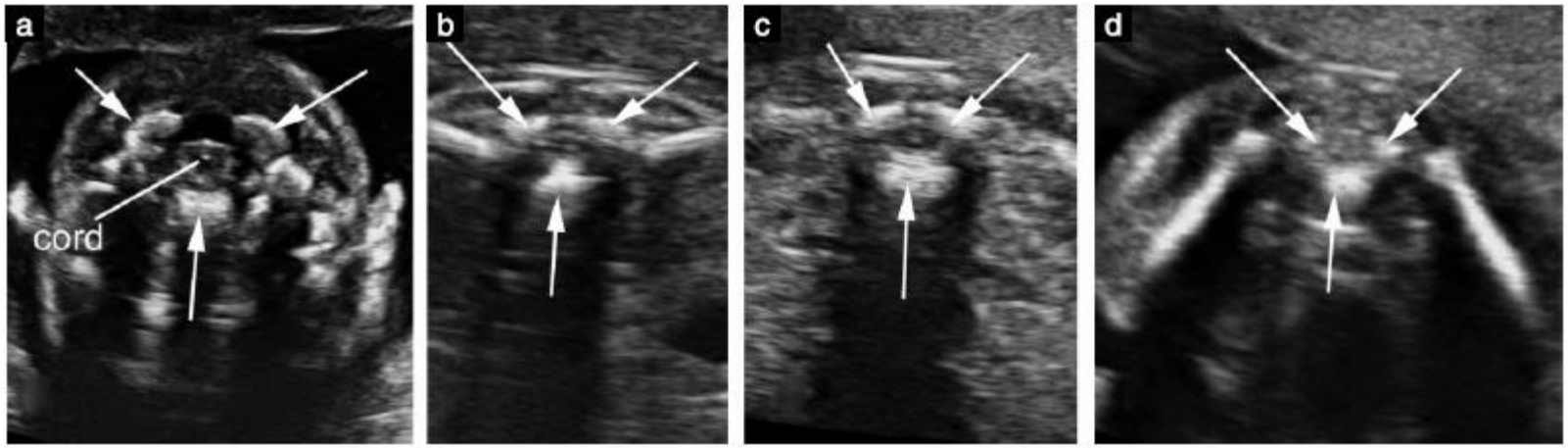
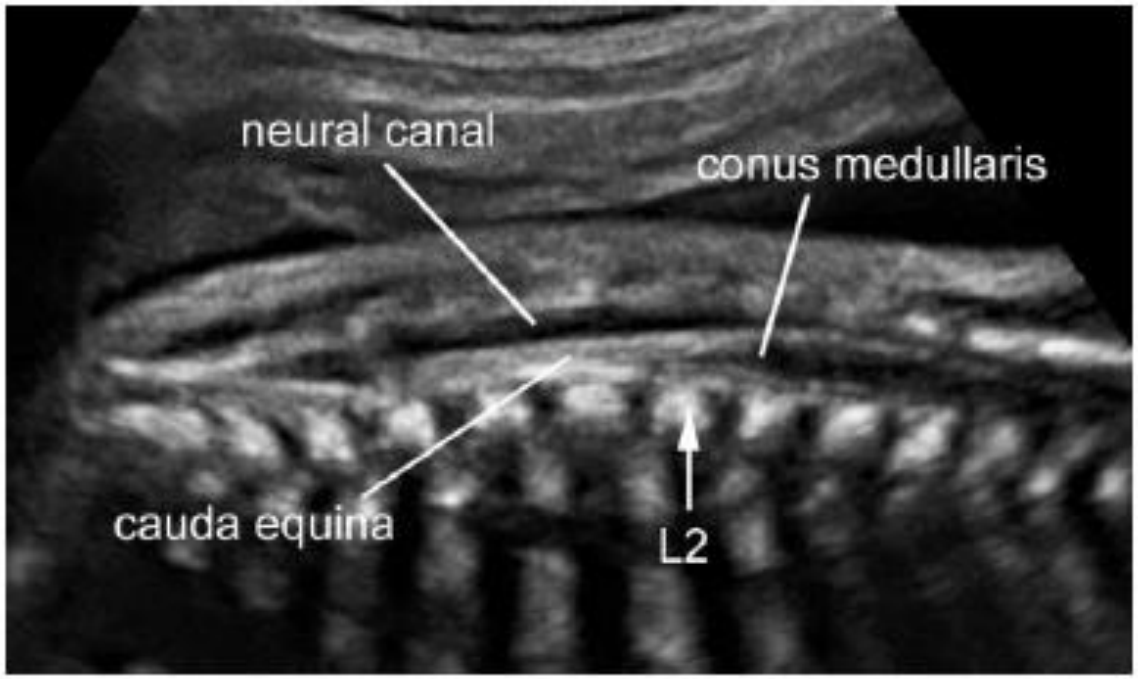
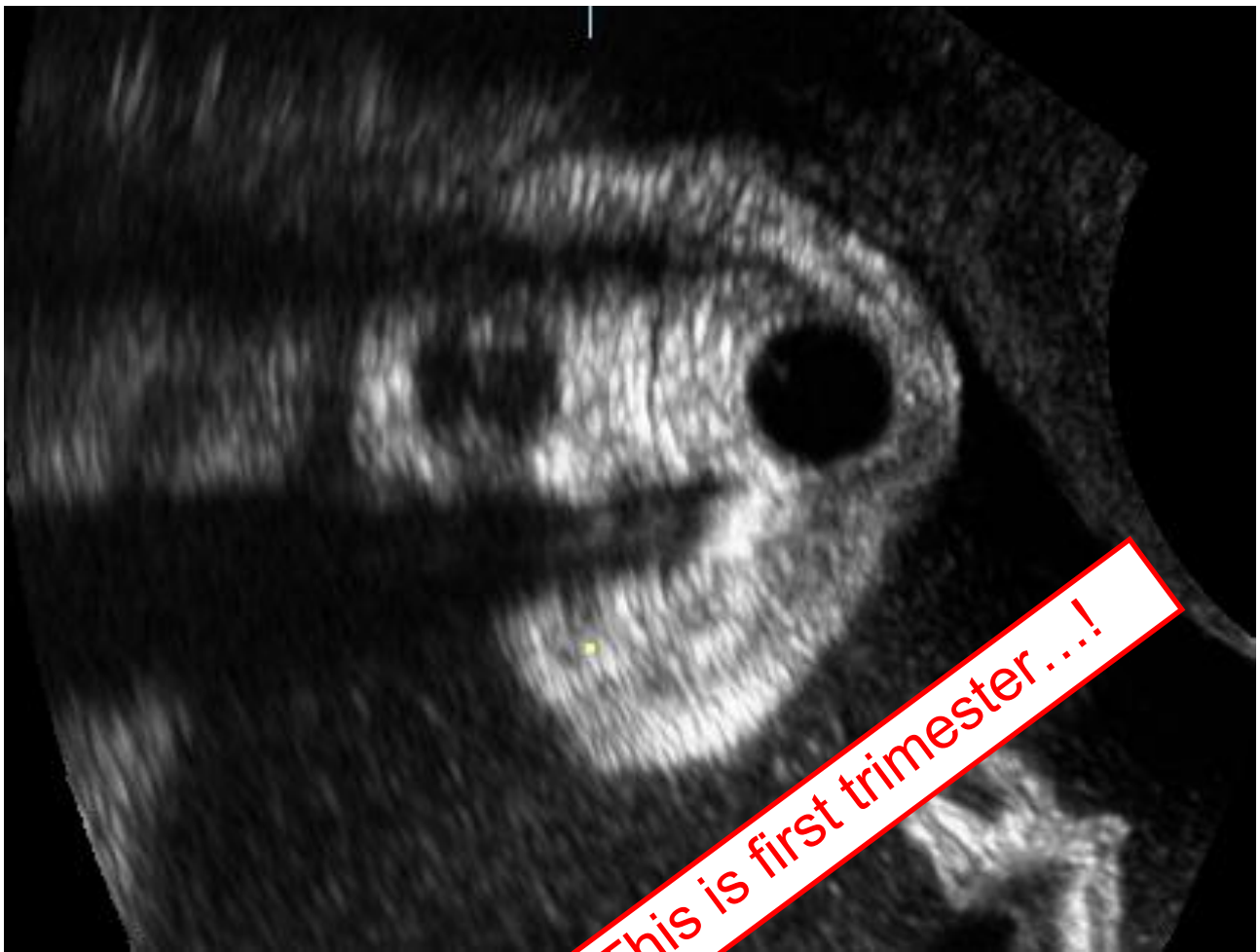


Figure 5 Axial views of the fetal spine at different levels. (a) Cervical; (b) thoracic; (c) lumbar; (d) sacral. The arrows point to the three ossification centers of the vertebrae. Note the intact skin overlying the spine. On images a–c the spinal cord is visible as a hypoechoic ovoid with central white dot.

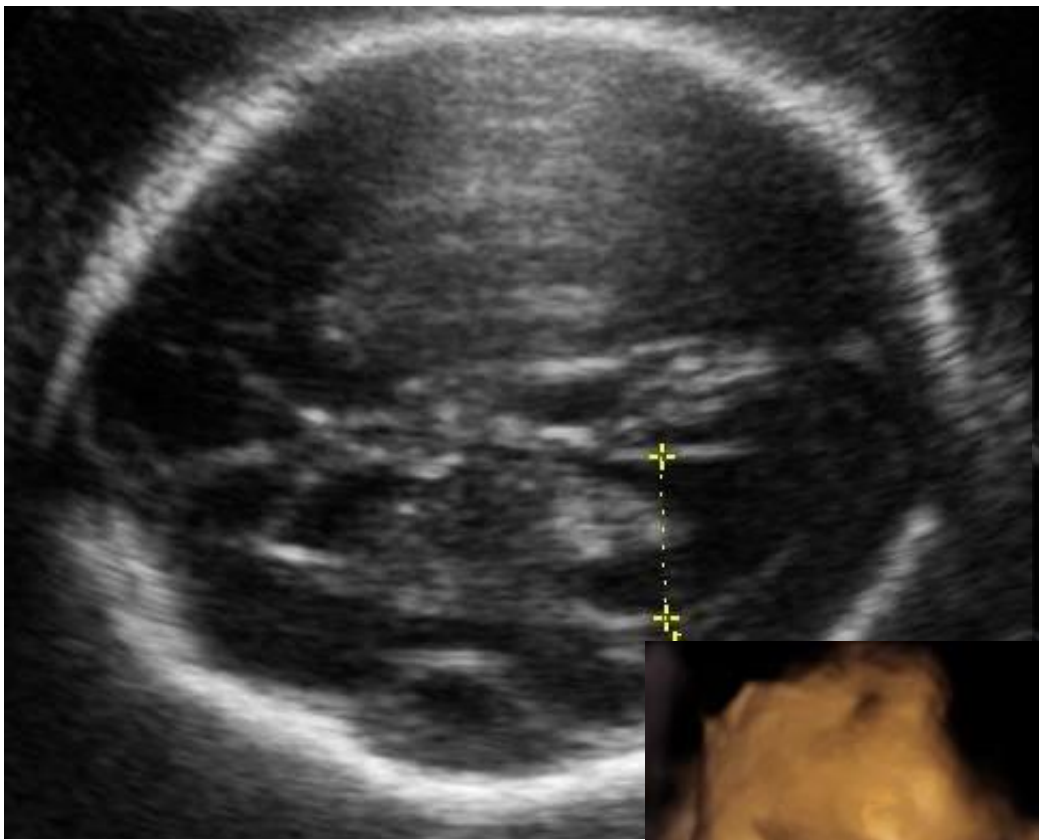


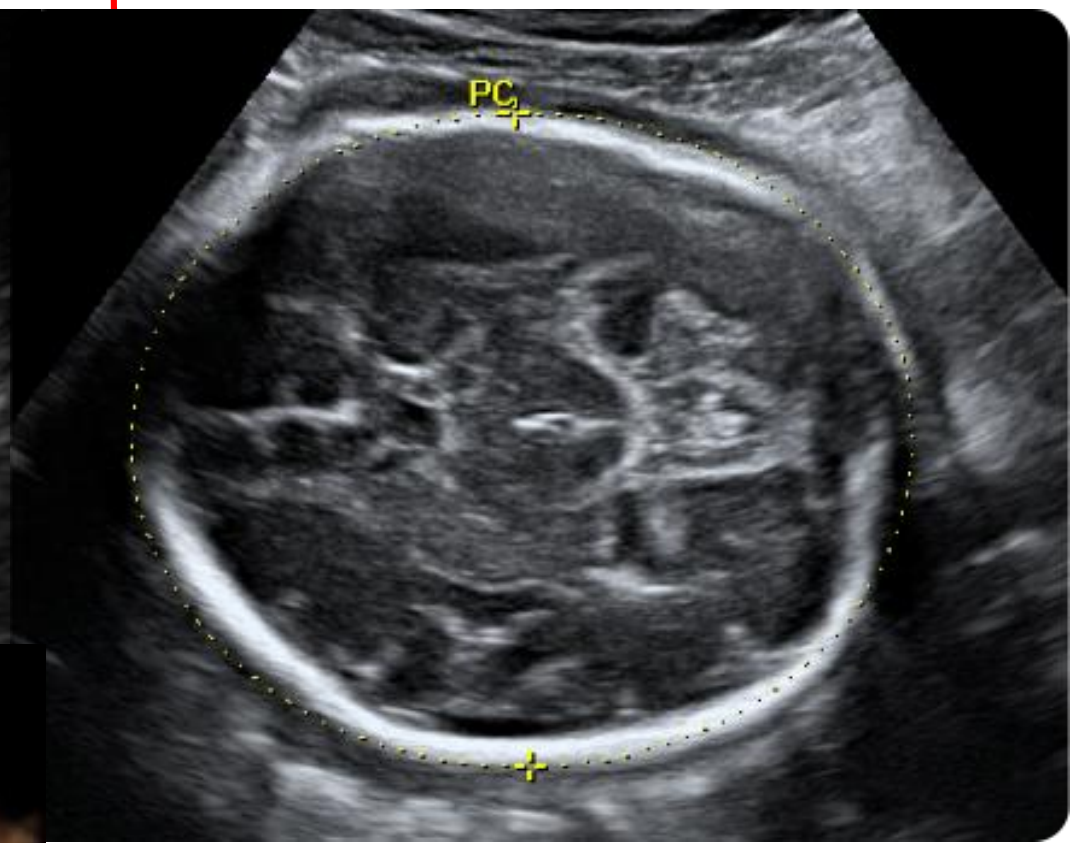
Skull shape

Acrania



Skull shape



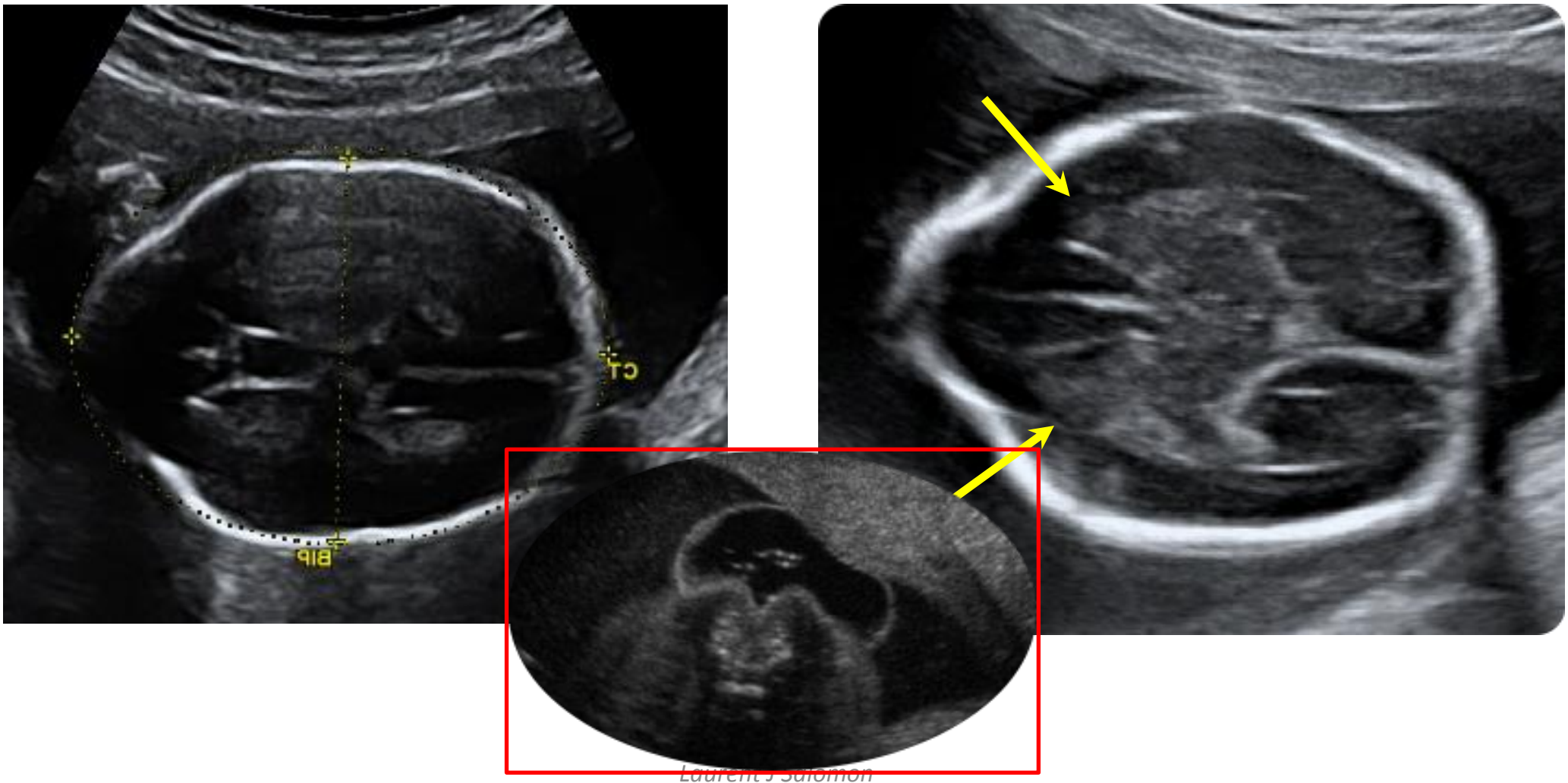


* Brachycephaly T 21

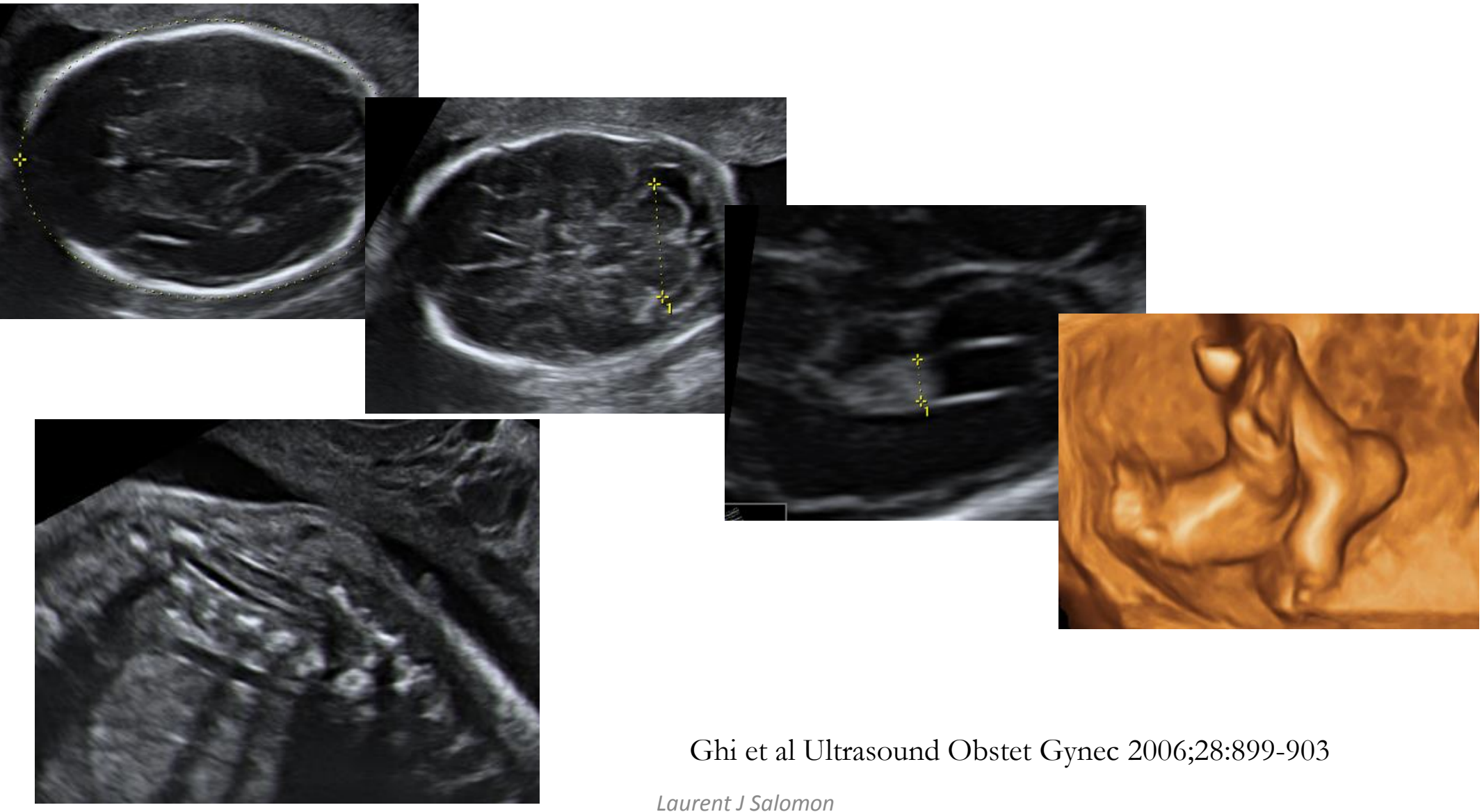
*Strawberry shapedT 18 ...

Skull shape

Lemon sign



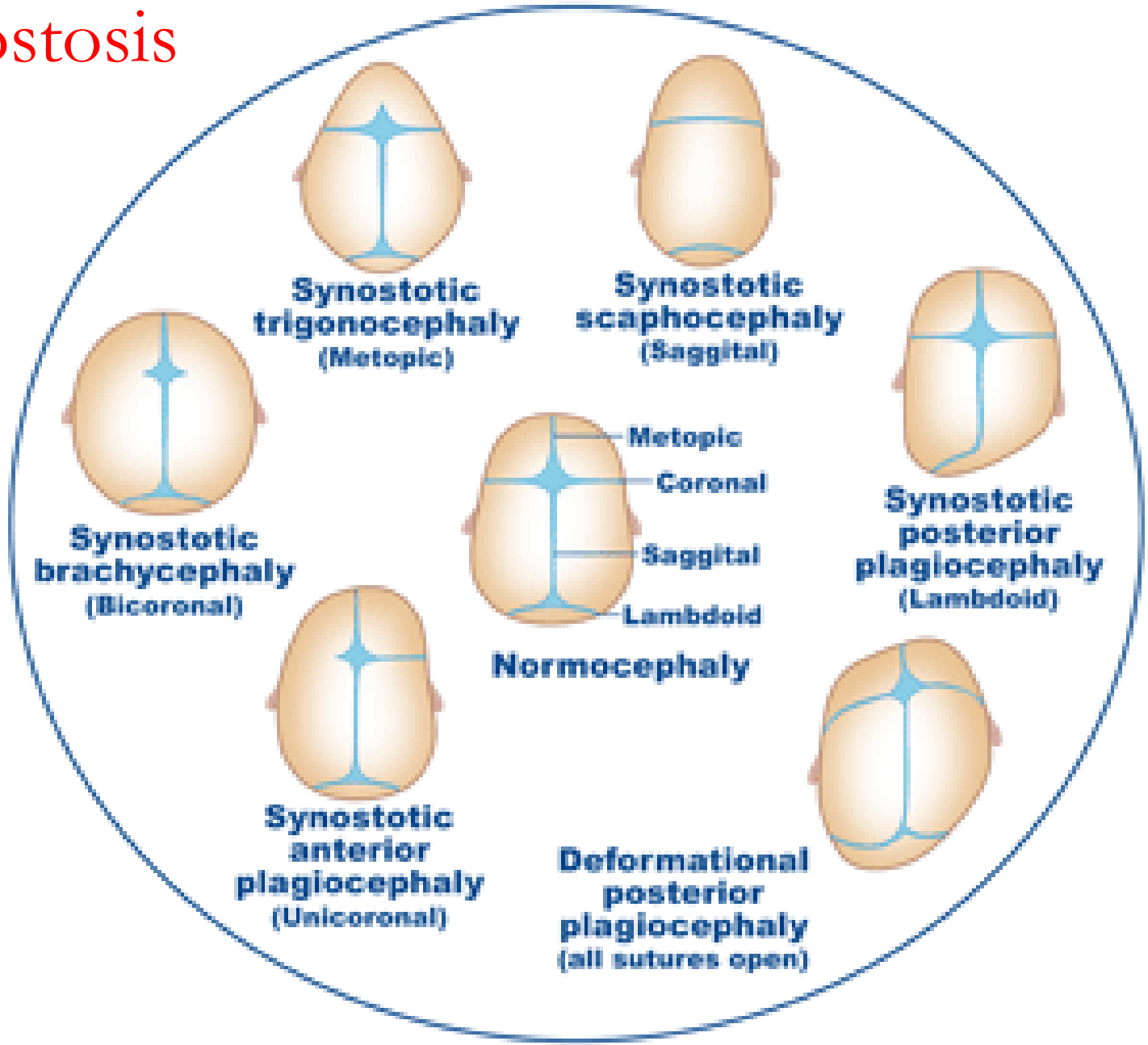
Normal skull shape in closed defect / meningocele / lipoma



Ghi et al Ultrasound Obstet Gynec 2006;28:899-903

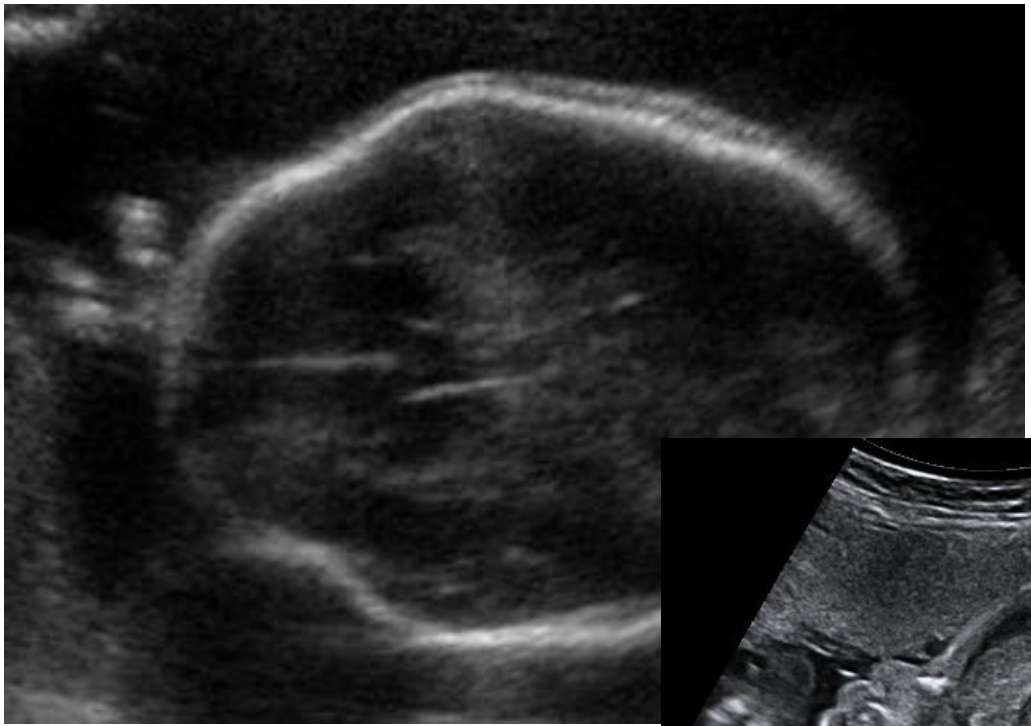
Skull shape: Craniosynostosis

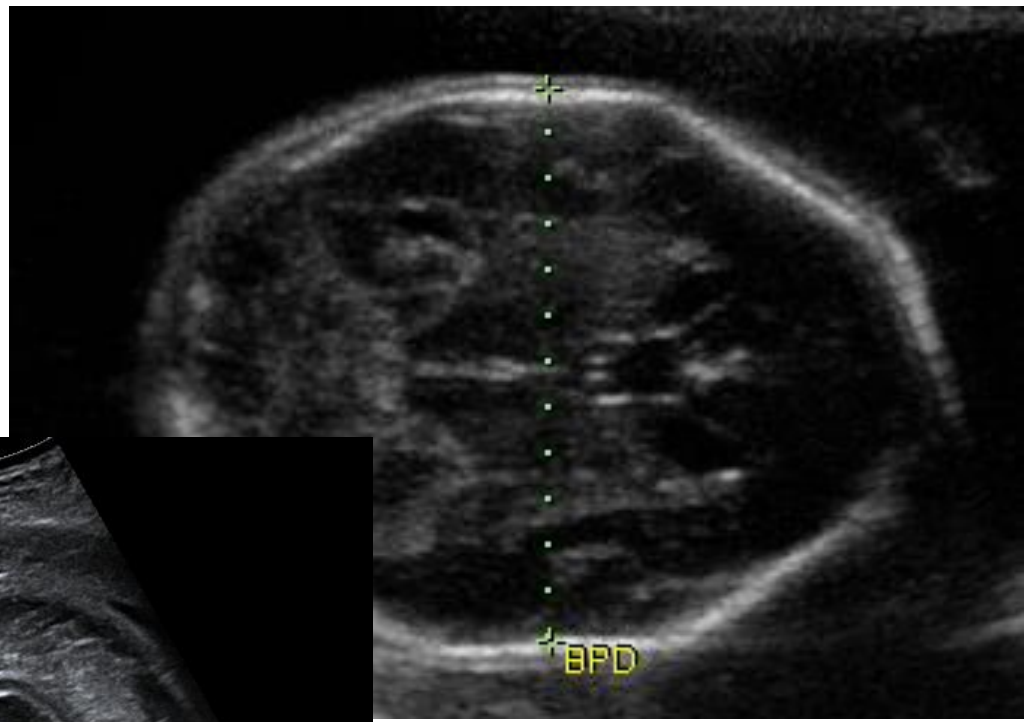
Anomalies



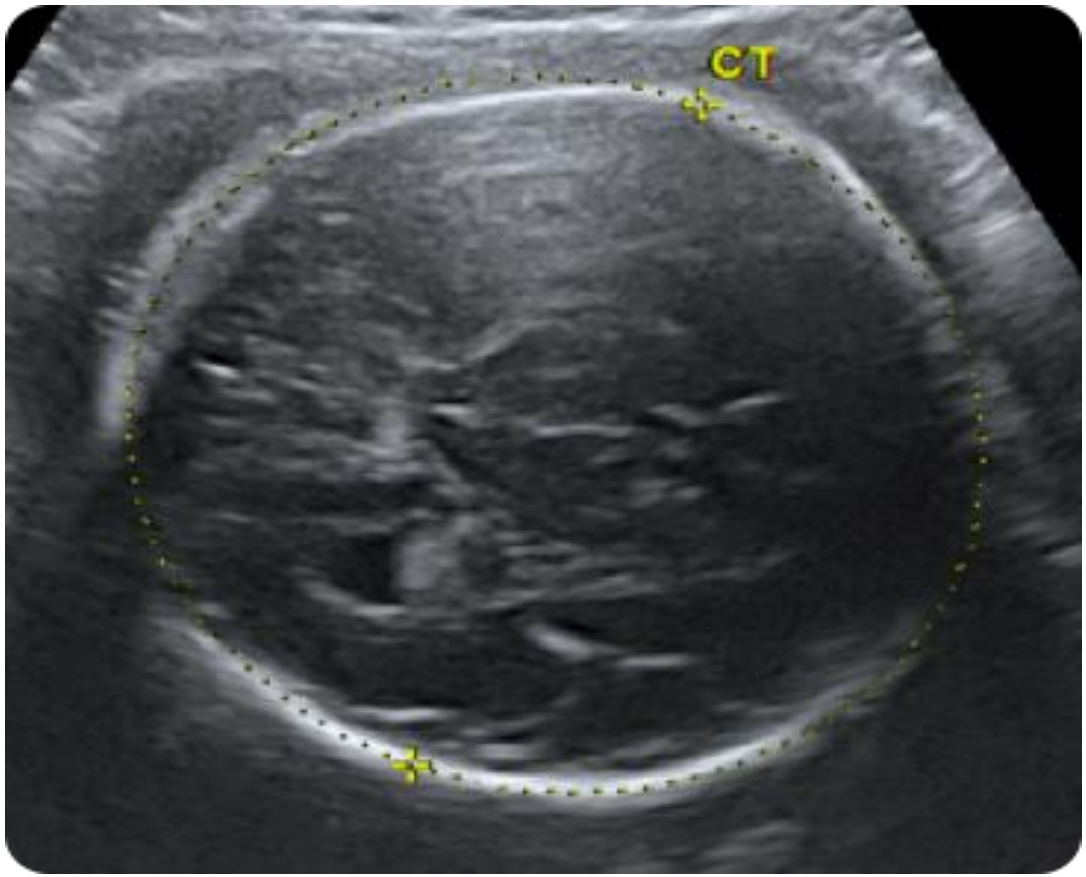
http://ticklemyulnarnerve.blogspot.sg/2011/04/post-3-cranium-scalp-facial-nerve.html

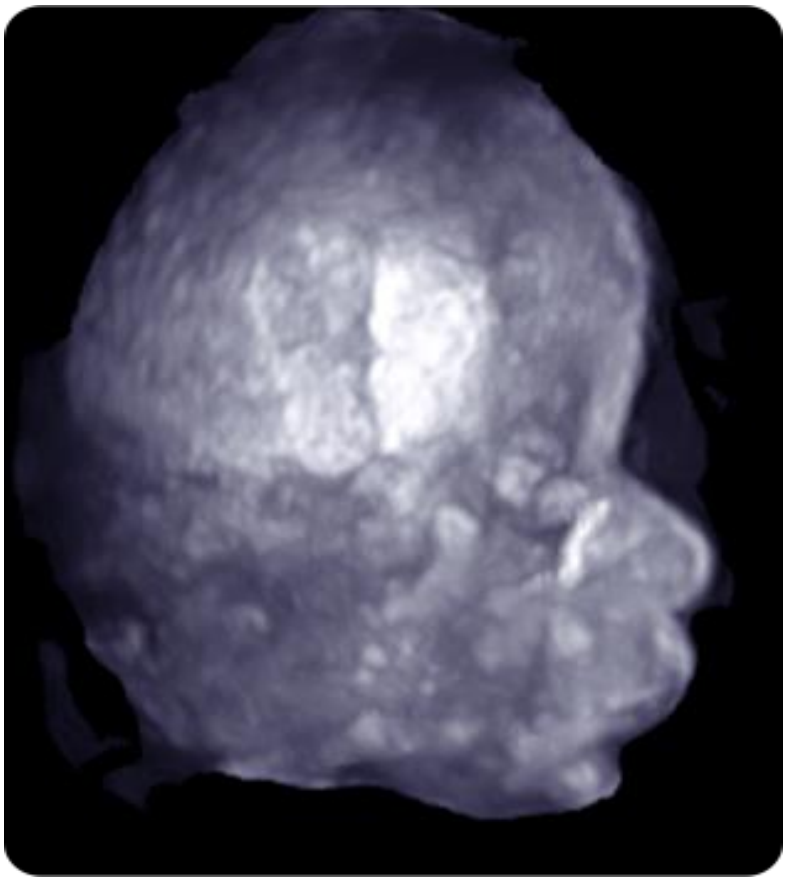
Skull shape: craniosynostosis





Skull shape: craniosynostosis





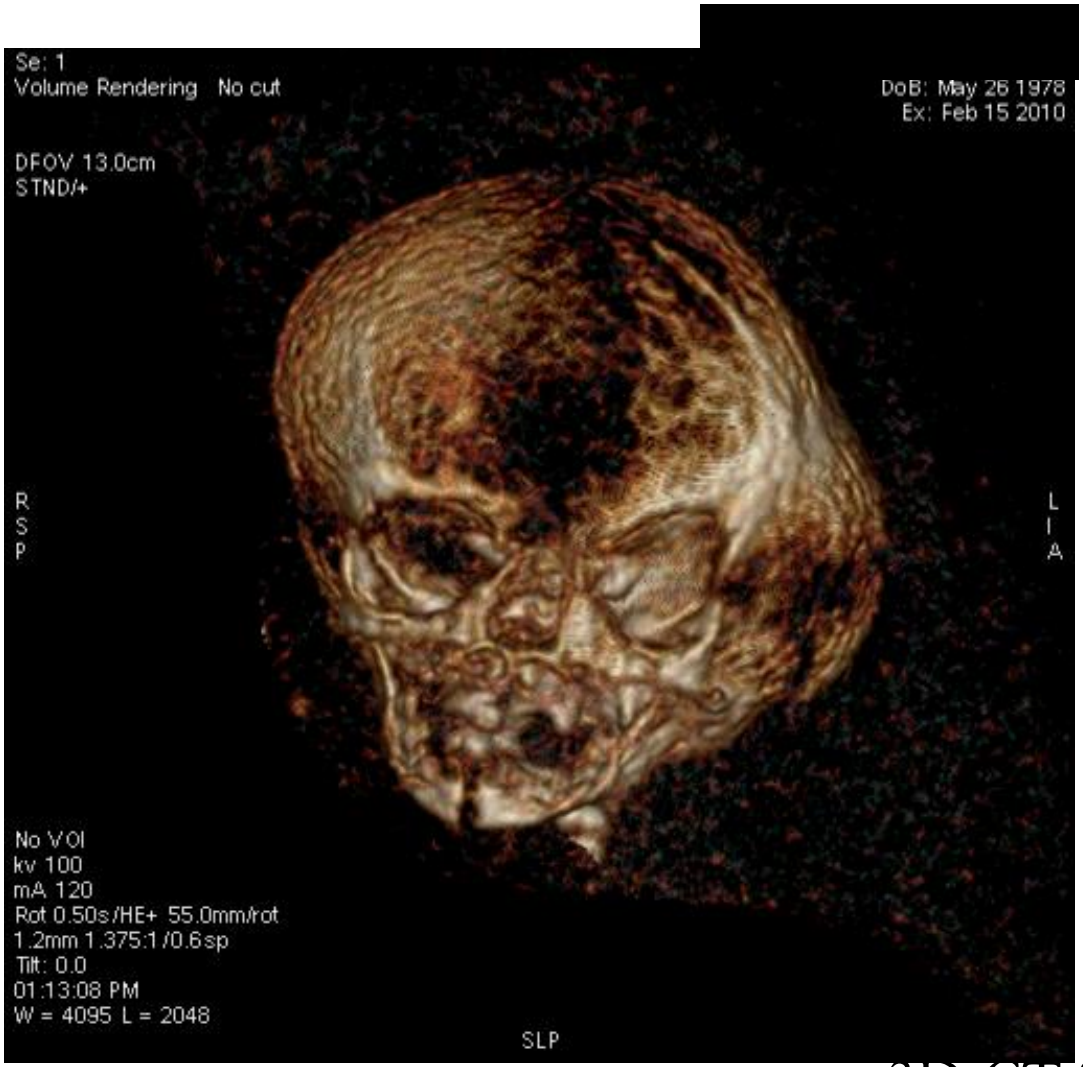
Images © JP Bault

Skull shape: craniosynostosis

Images © JP Bault

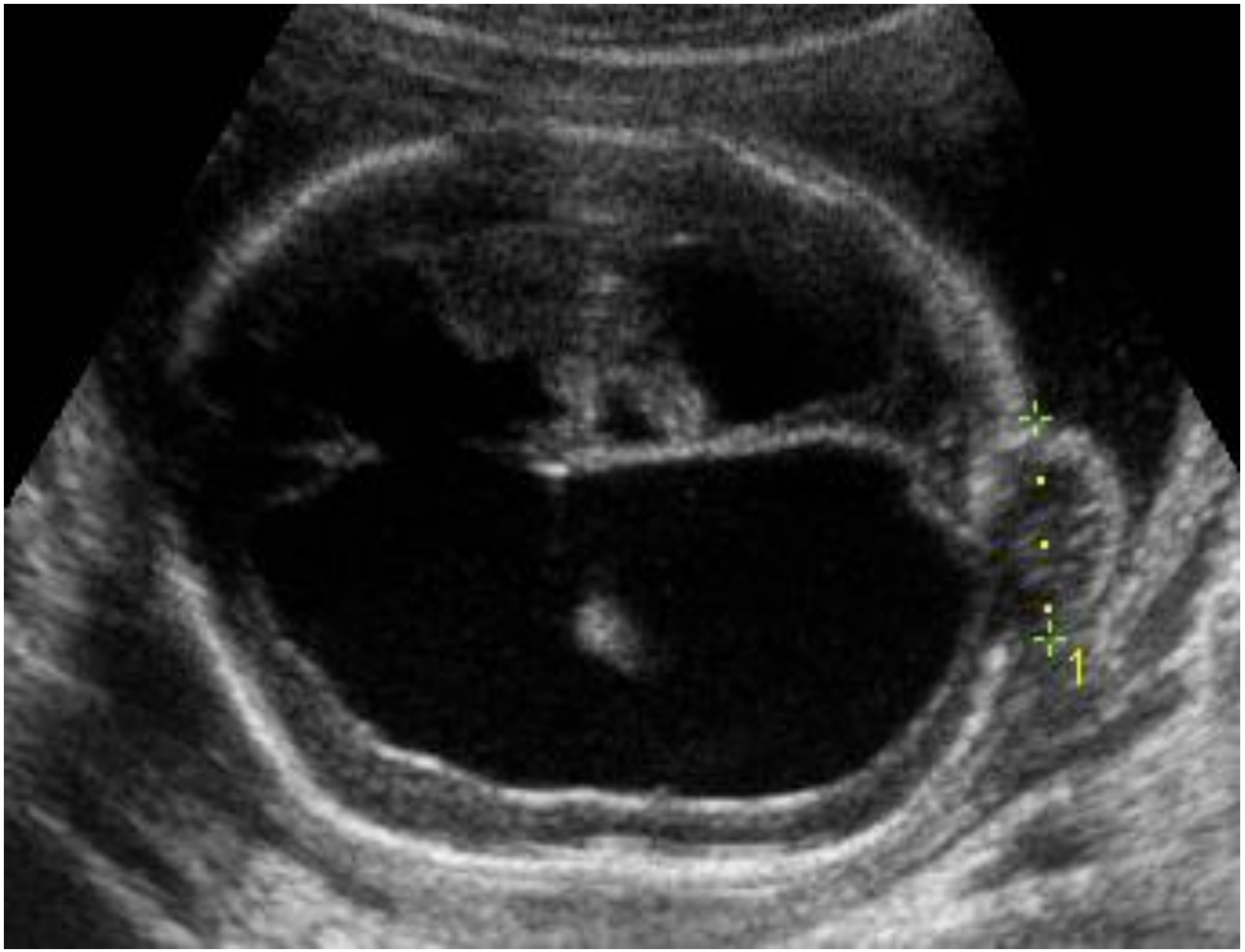
Cloverleaf craniosynostosis

Skull shape: craniosynostosis



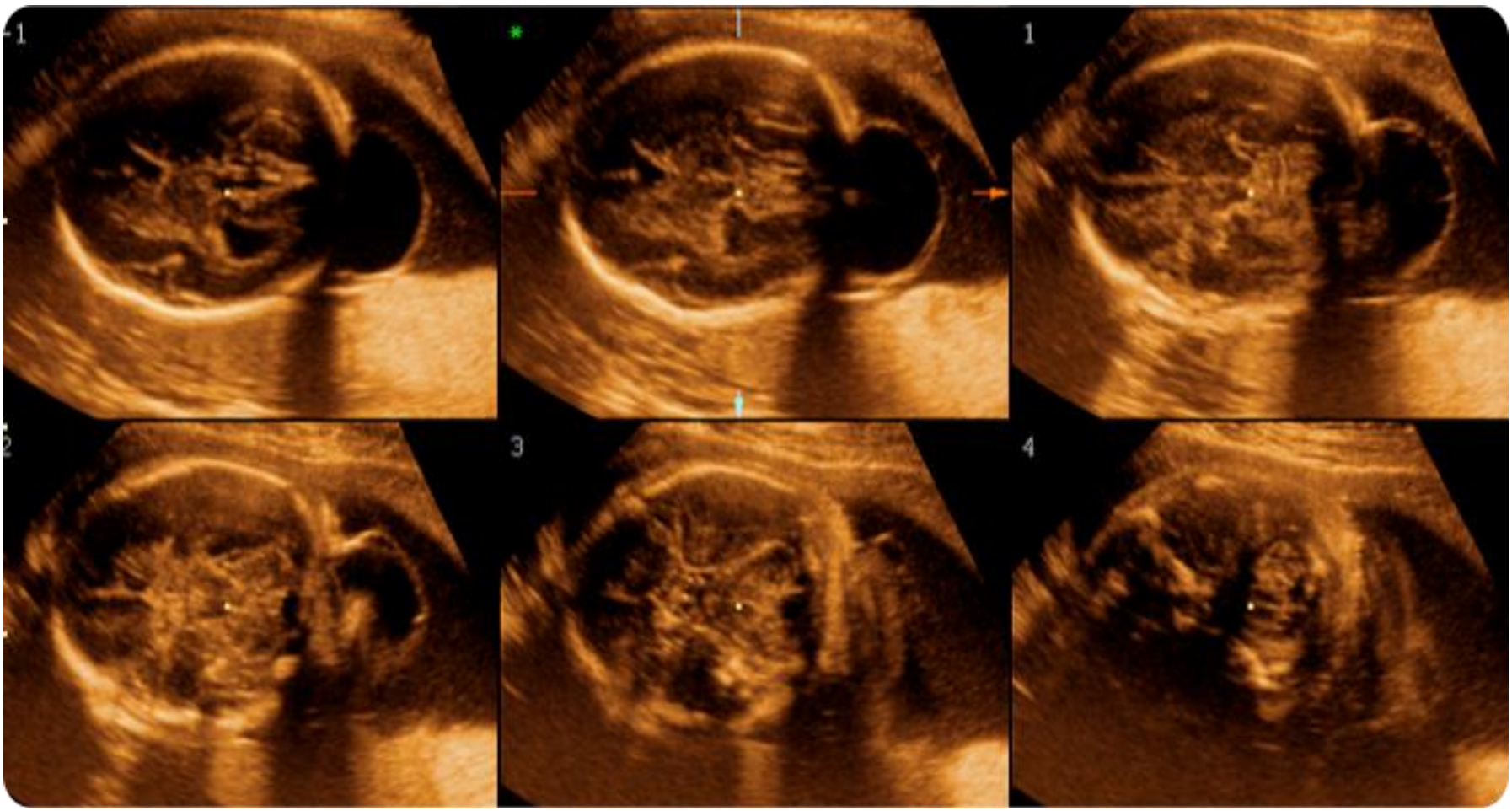
3D CT SCAN

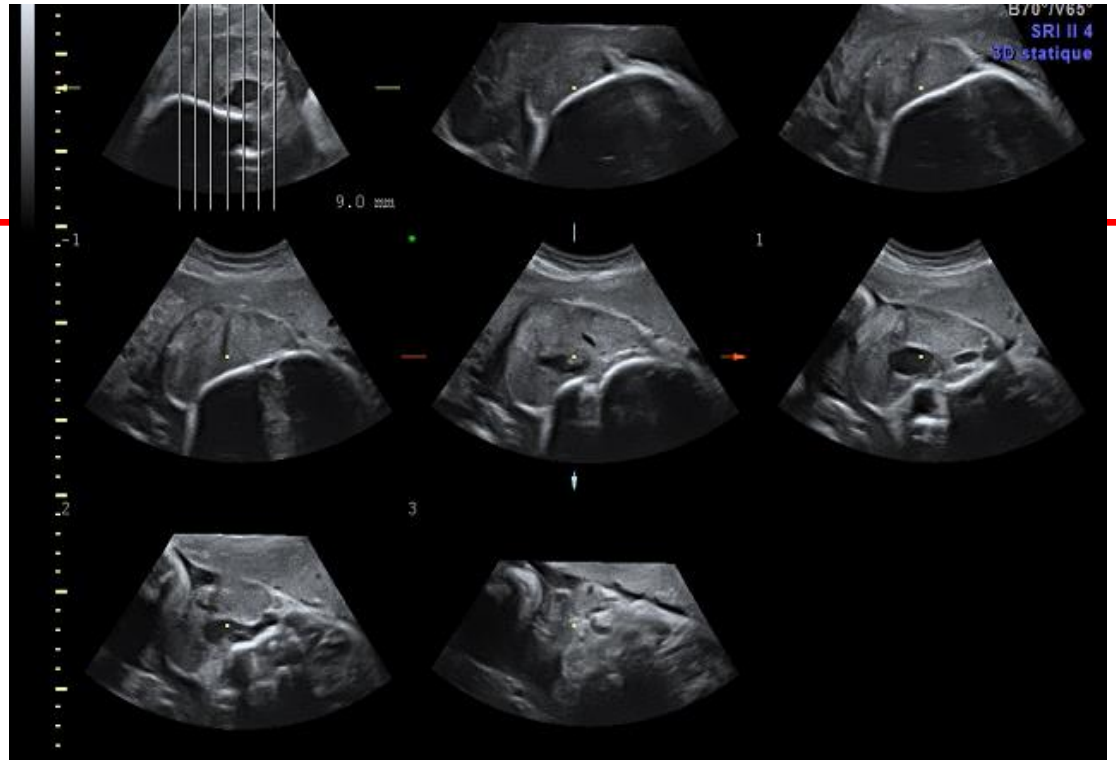
Skull shape: other

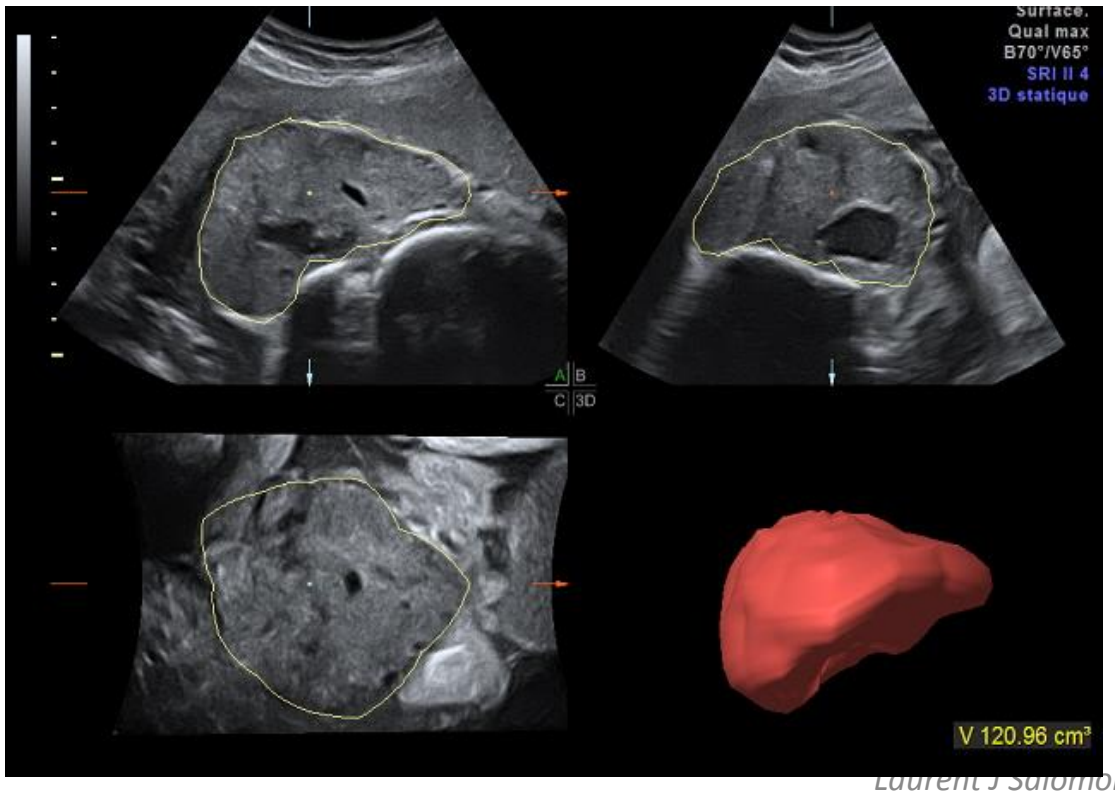


Meningo-encephalocele

Skull shape: other

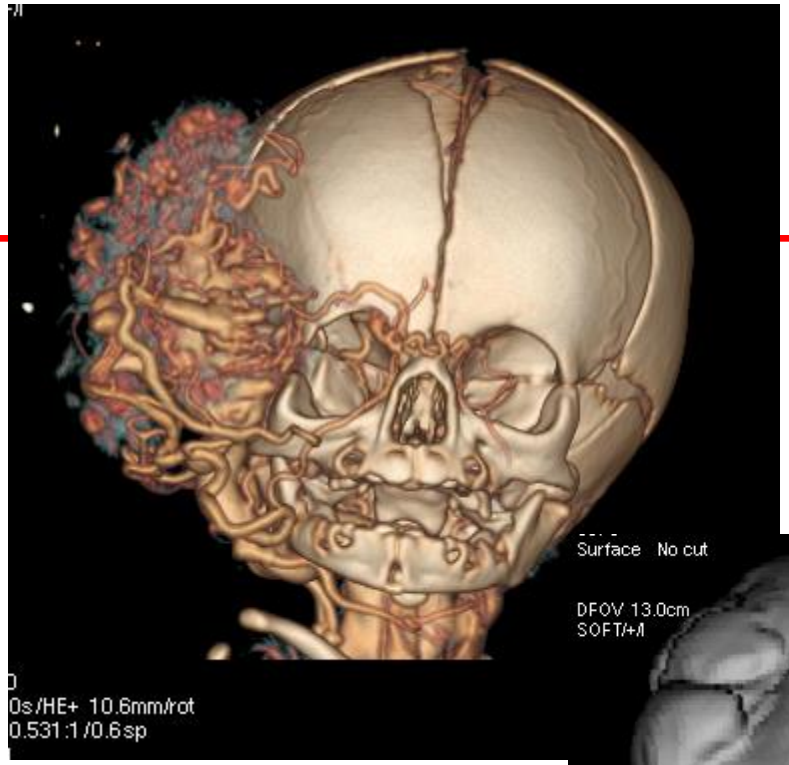


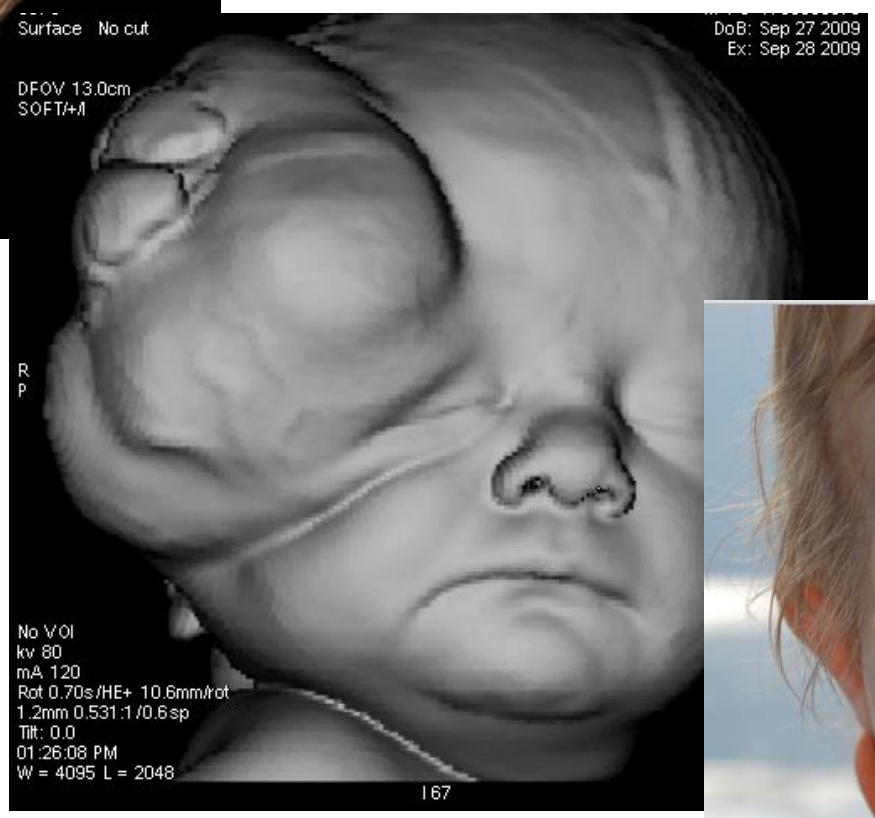




Skull shape:
Haemangioma (RICH)

Skull shape: Haemangioma (RICH)





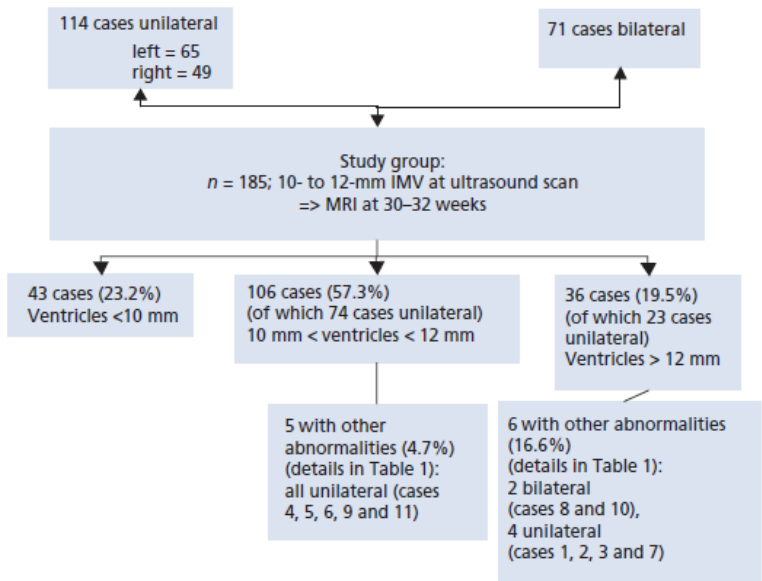
Ventriculomegaly

- Ventriculomegaly:
  - GA at diagnosis
  - Size ++ (10-12 / 12-15 / 15-20)
  - Shape
  - Bilateral / Unilateral
  - Gender / Biometry
  - Evolutivity
  - Associated CNS / Non CNS anomalies

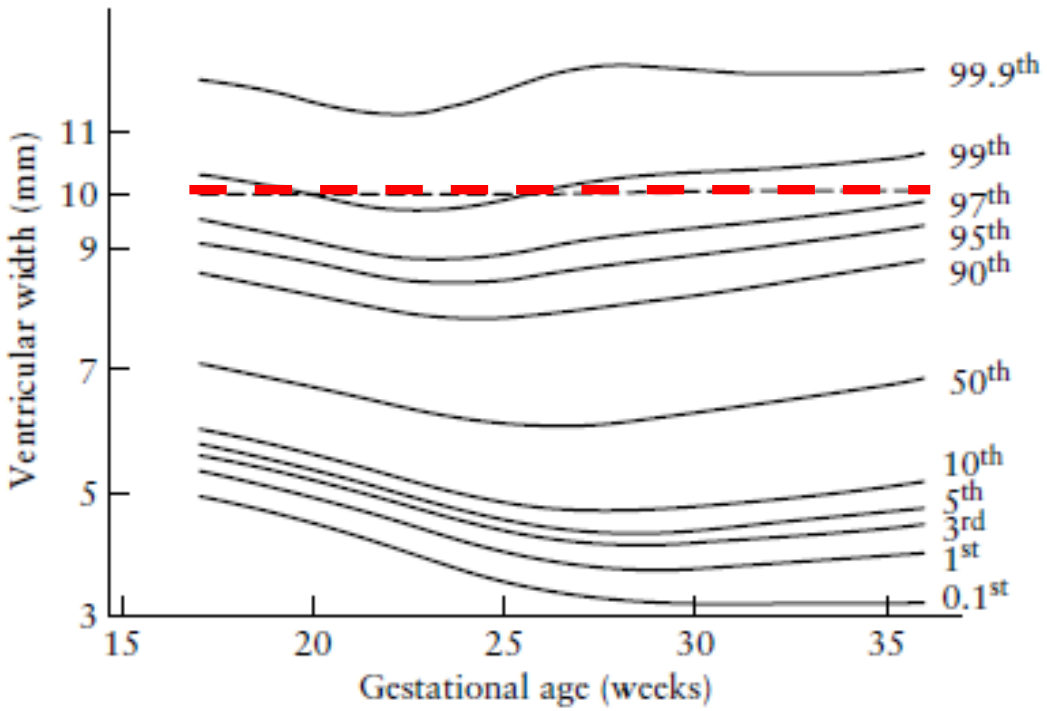
  - Infection / Aneuploidy / MRI ?

Third-trimester fetal MRI in isolated 10- to 12-mm ventriculomegaly: is it worth it?

LJ Salomon,[a] J Ouahba,[b] A-L Delezoide,[c] E Vuillard,[b] J-F Oury,[b] G Sebag,[a] C Garel[a]



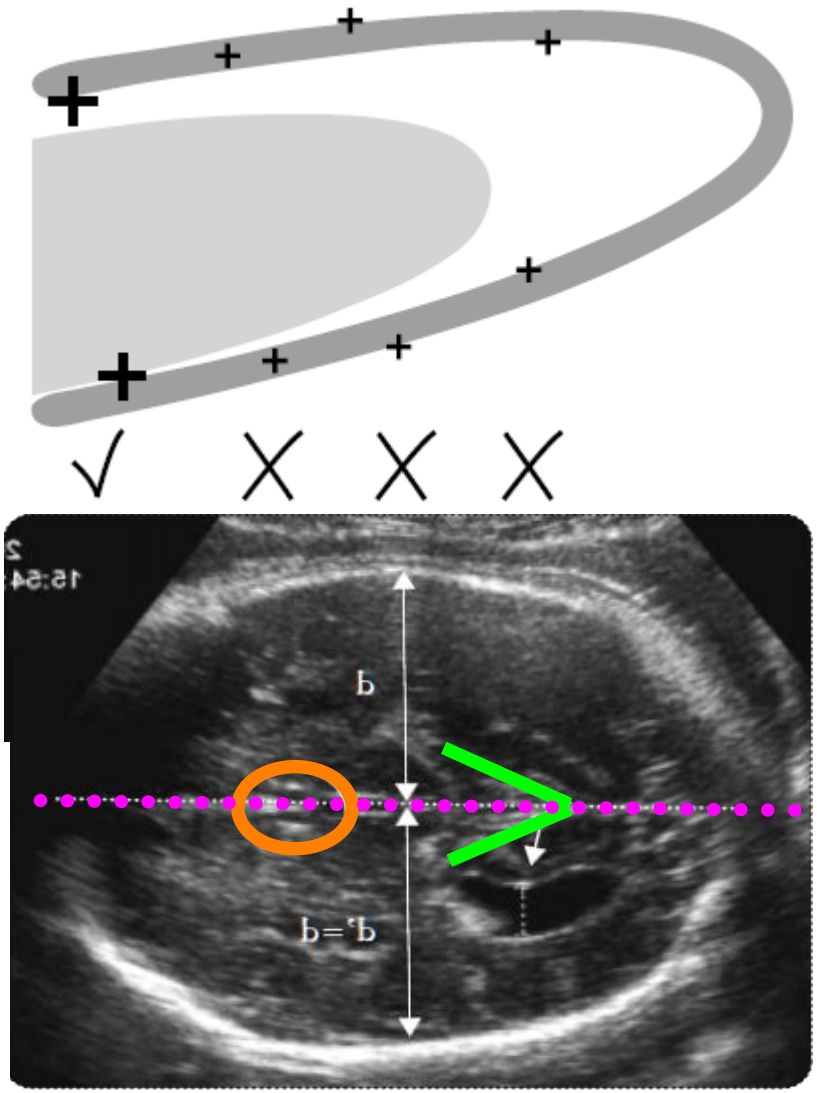
BJOG 2006; 113:942–947.



Ultrasound Obstet Gynecol 2007; 30: 61–66
Published online 15 May 2007 in Wiley InterScience (www.interscience.wiley.com). **DOI:** 10.1002/uog.4026

Reference ranges for fetal ventricular width: a non-normal approach

L. J. SALOMON, J. P. BERNARD and Y. VILLE
Service de Gynécologie-Obstétrique, Centre Hospitalier Intercommunal de Poissy-St Germain, Poissy, France



Cerebral ventricle width measurements vary in relation to gestational age, fetal gender and cephalometry

Salomon et al. *Ultrasound Obstet Gynecol* 2011; 37: 369–372.

Deborah Levine, MD
Isabelle Trop, MD
Tejas S. Mehta, MD
Patrick D. Barnes, MD

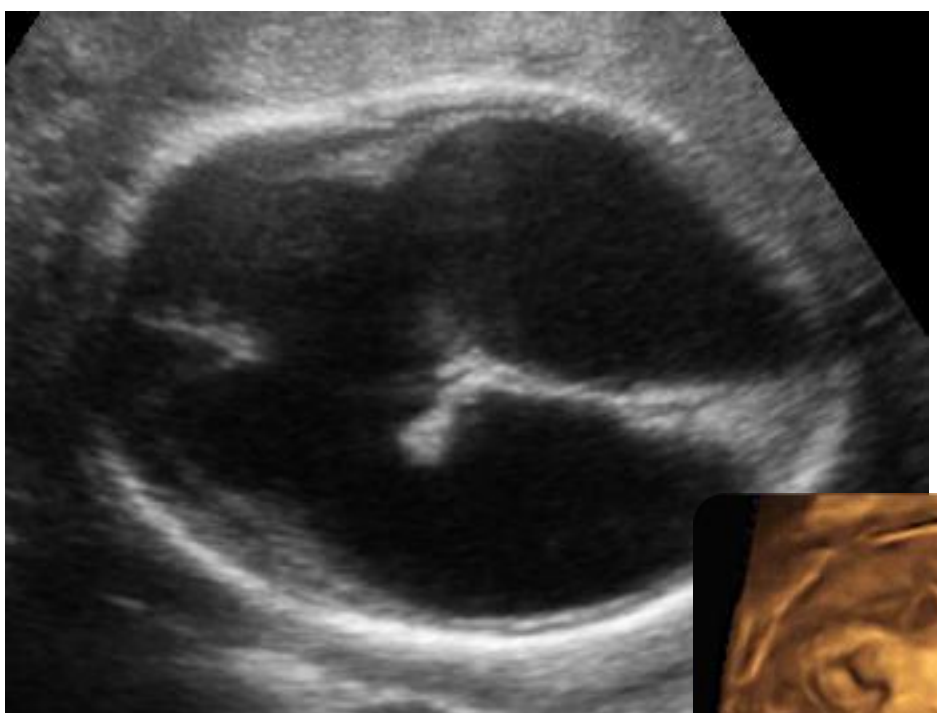
MR Imaging Appearance of Fetal Cerebral Ventricular Morphology[1]

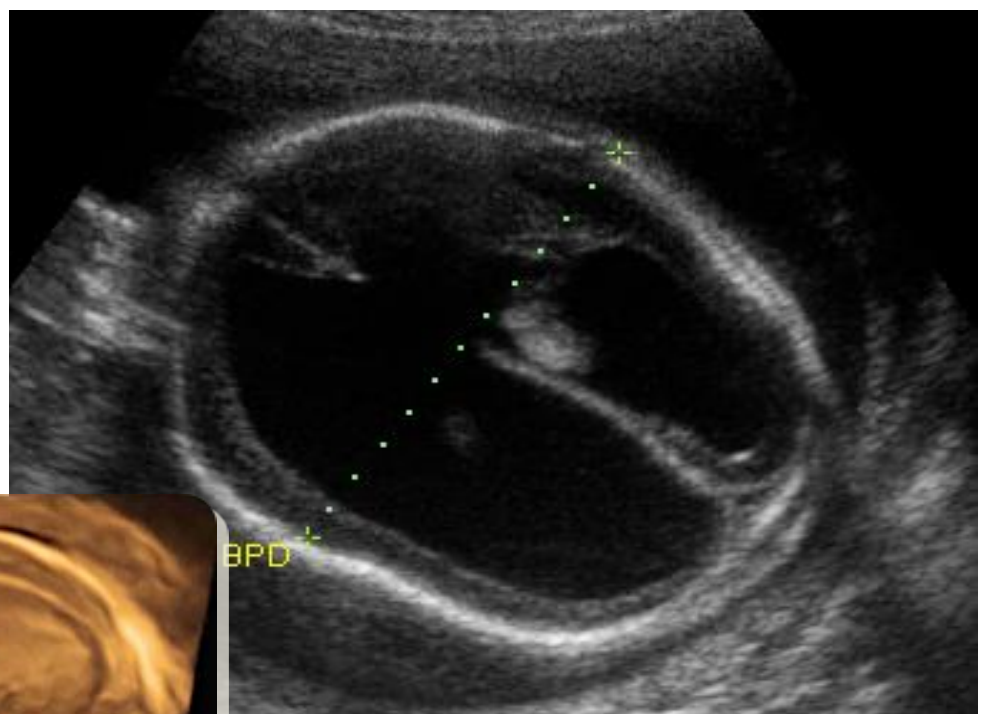
Radiology 2002; 223:652–660

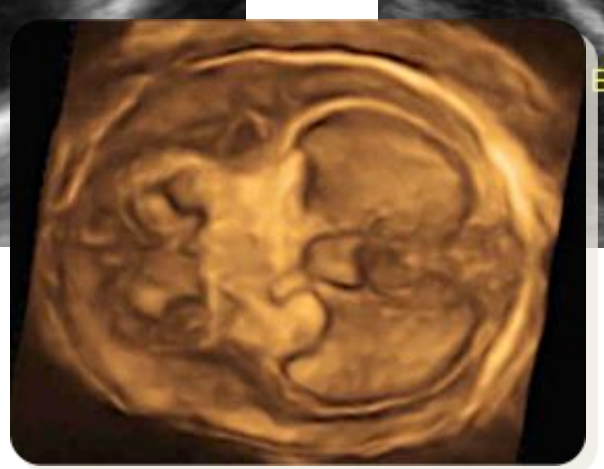
Final Major Diagnosis (n = 204)	Normal Configuration	Primitive Fetal Ventricular Configuration	Colpocephaly with Normal Orientation of Frontal Horns	Abnormal Orientation of Frontal Horns with Colpocephaly	Abnormal Orientation of Frontal Horns without Colpocephaly	Angular Appearance	Fused Frontal Horns	Global Dilatation	Distorted Appearance
Normal (n = 110)	102 (26.0 ± 6.4)	8 (23.3 ± 4.6)	0	0	0	0	0	0	0
Isolated mild ventriculomegaly (n = 16)	2 (26, 32)	10 (25.1 ± 3.1)	0	0	0	0	0	4 (20.4 ± 1.5)	0
Moderate to severe ventriculomegaly (n = 8)	0	0	0	0	0	0	0	8 (20.6 ± 3.4)	0
Complete agenesis of the corpus callosum (n = 9)	0		0	3 (31.9 ± 5.3)	3 (29.3 ± 9.1)	0	0	3 (24.5 ± 4.0)	0
Partial agenesis of the corpus callosum (n = 5)	1 (22)	0	4 (26.7 ± 10.0)	0	0	0	0	0	0
Spinal NTD (n = 13)	1 (30)	0	0	0	0	9 (21.2 ± 3.6)	0	3 (28.5 ± 4.3)	0
Encephalocele (n = 7)	0	0	0	0	0	2 (16, 20)	0	1 (23)	4 (26.4 ± 6.9)
Agenesis of the septi pellucidi (n = 4)	0	0	0	0	0	0	2 (21, 34)	1 (23, 34)	0
Miscellaneous (n = 32)	13 (26.2 ± 6.4)	3 (20.0 ± 3.5)	0	1 (20)	0	0	0	3 (24.0 ± 10.4)	12 (26.4 ± 6.9)
Total	119	21	4	4	3	11	2	24	16

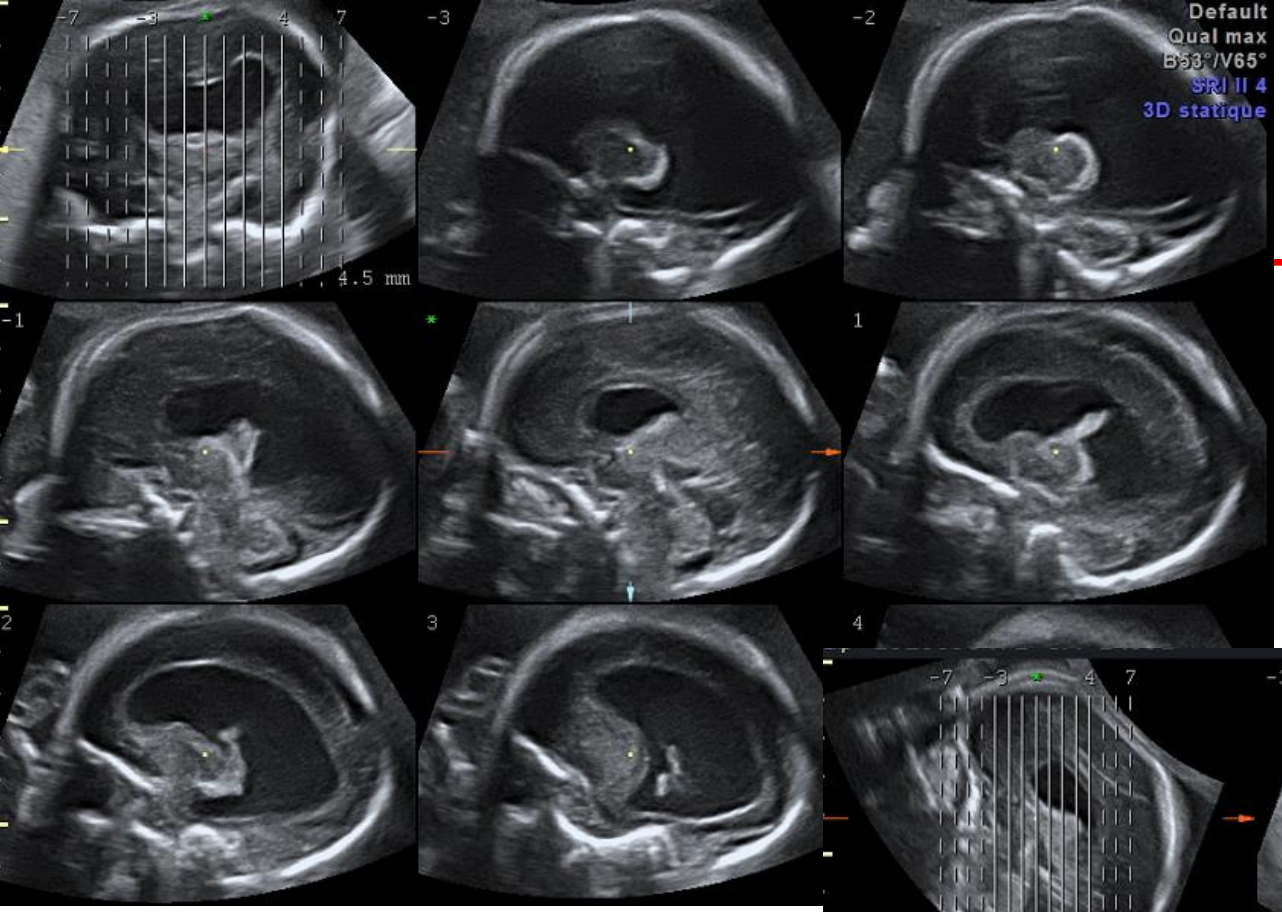
Note.—Numbers in parentheses are gestational ages in weeks. Age is presented as mean gestational age ± SD when there were three or more fetuses per category.

Ventriculomegaly: "easy"

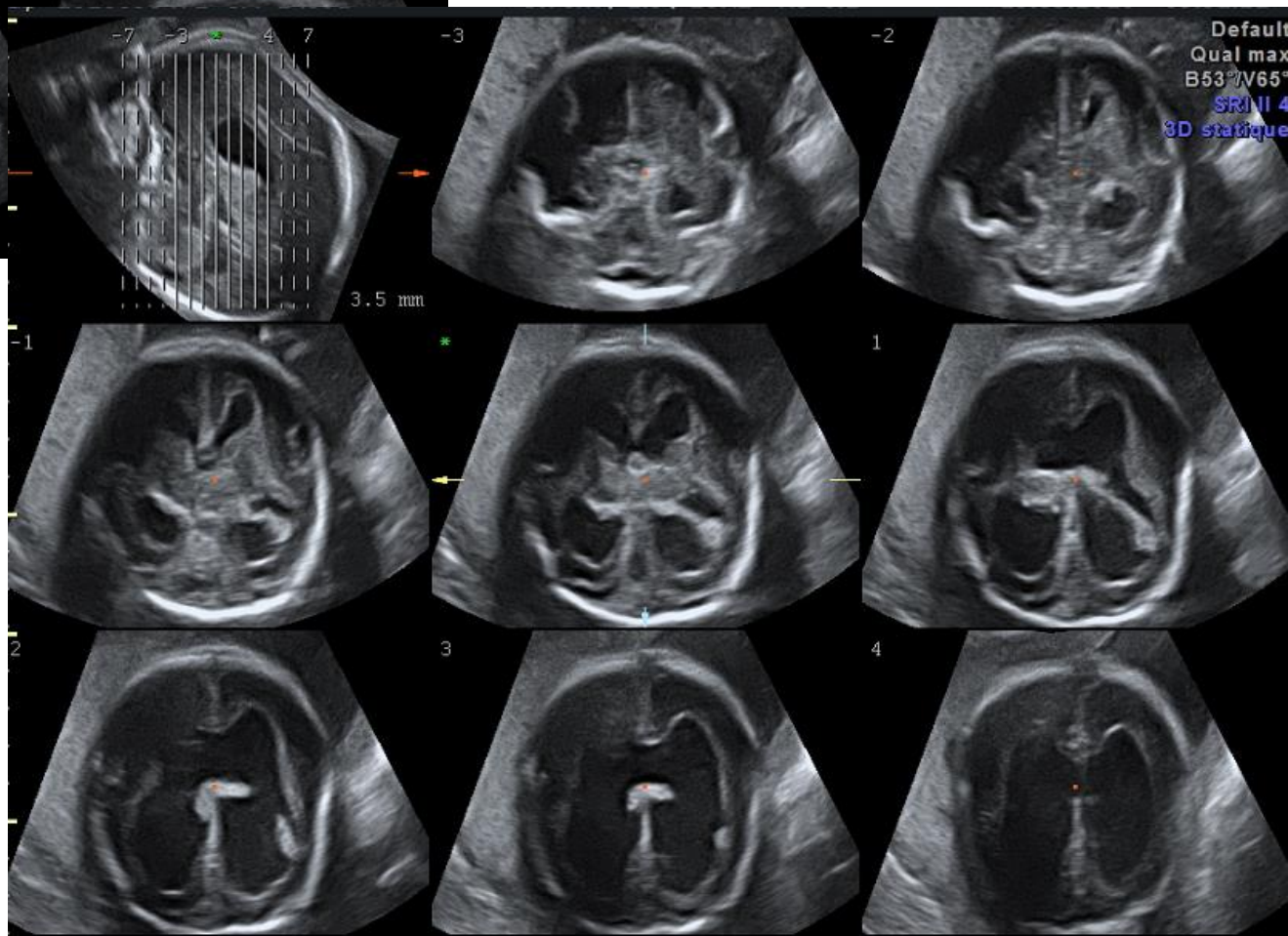




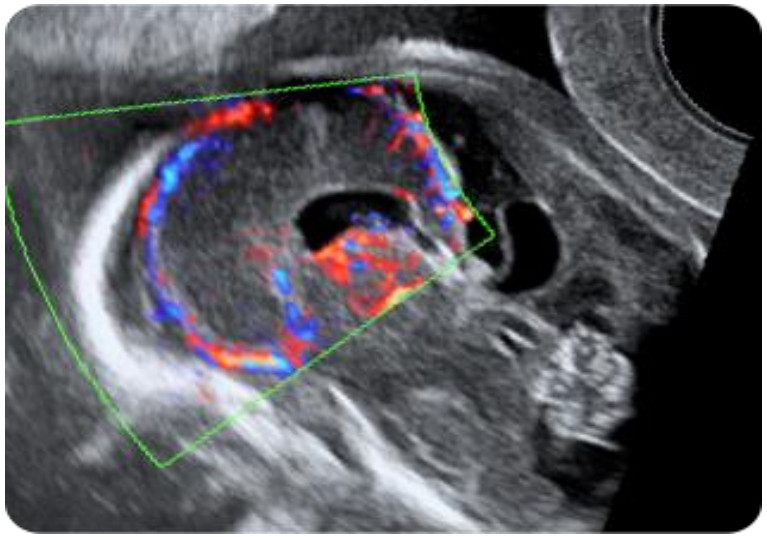




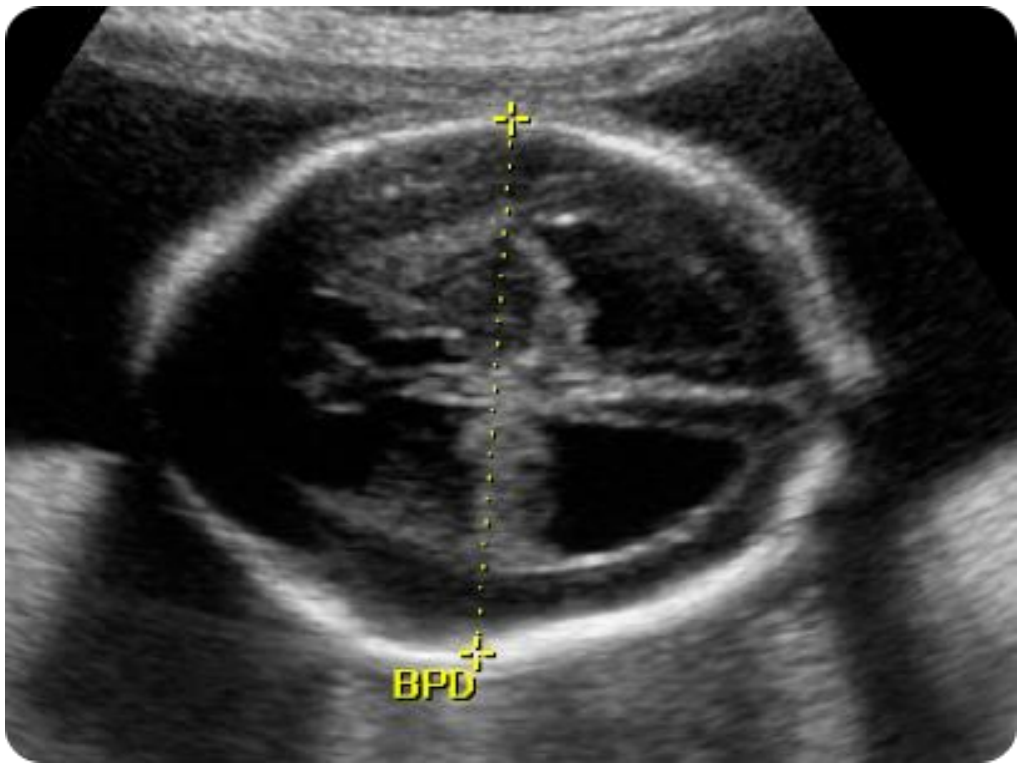
Ventriculomegaly: “easy”

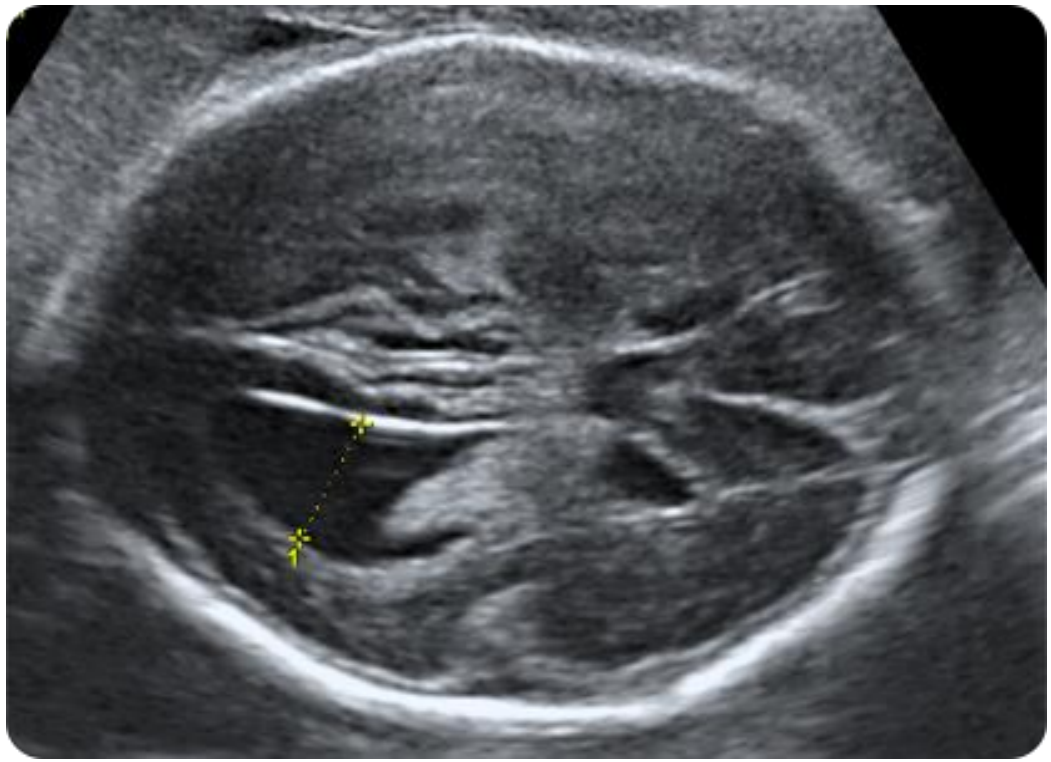


Ventriculomegaly: "easy"



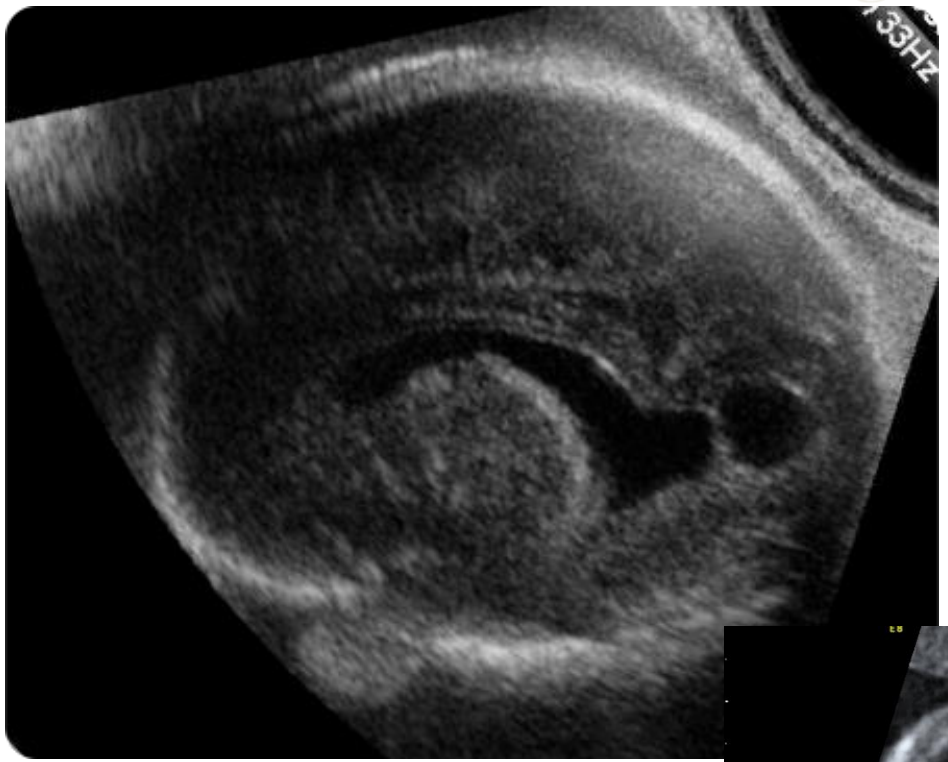
Ventriculomegaly : aneuploidy marker





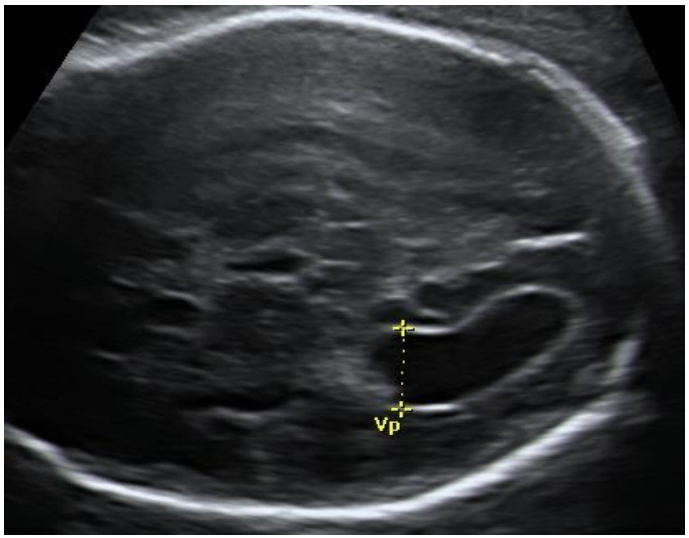
Look at baseline risk according to maternal age / NT and Serum markers.

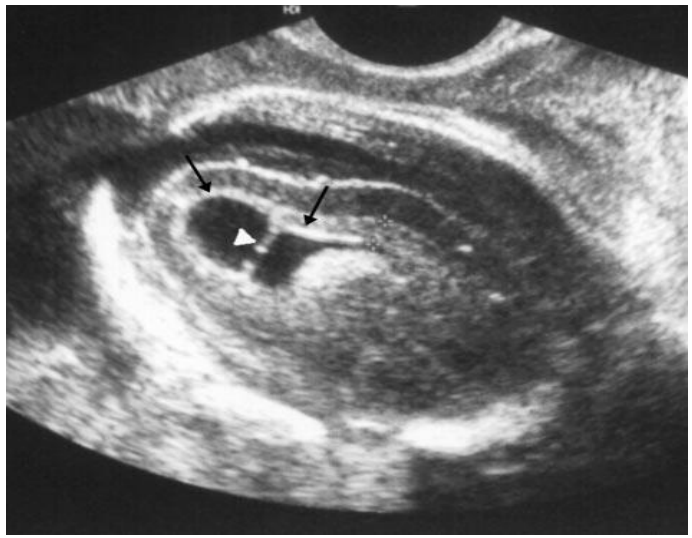
Ventriculomegaly: Cytomegalovirus

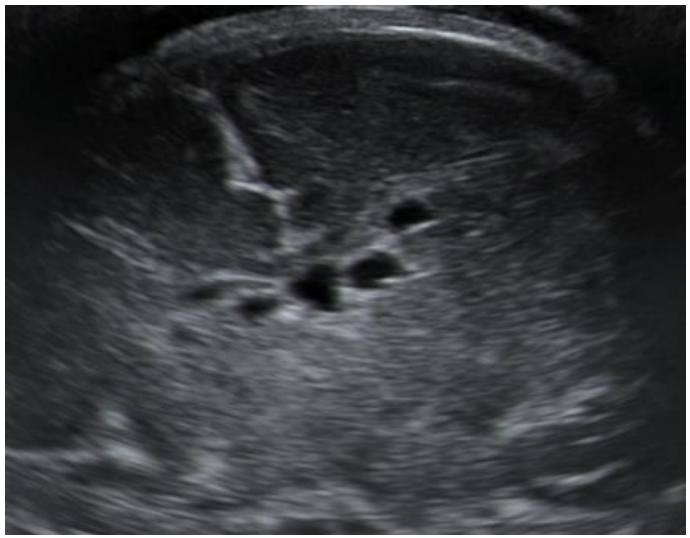


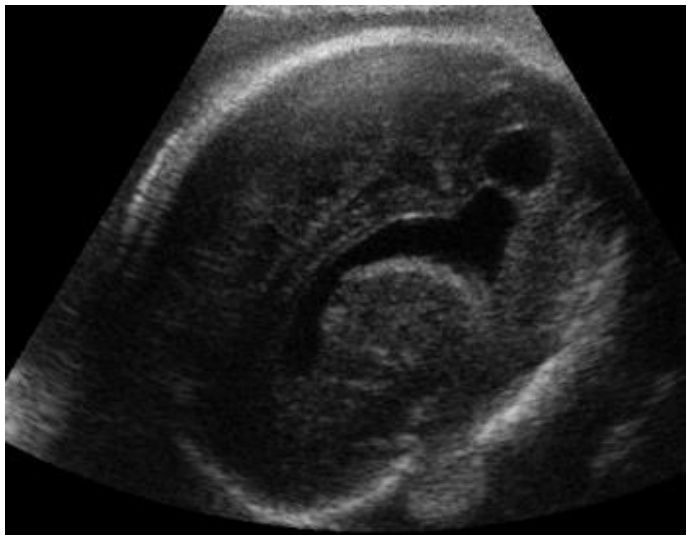
Ventriculomegaly: Cytomegalovirus

Anomalies

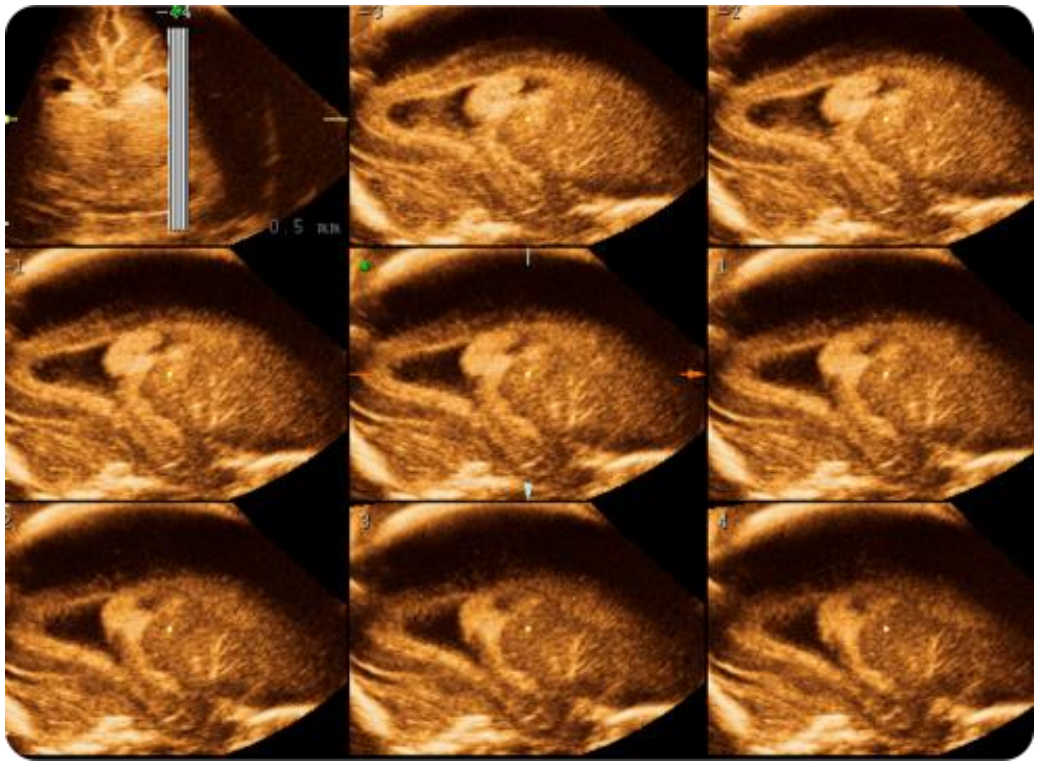


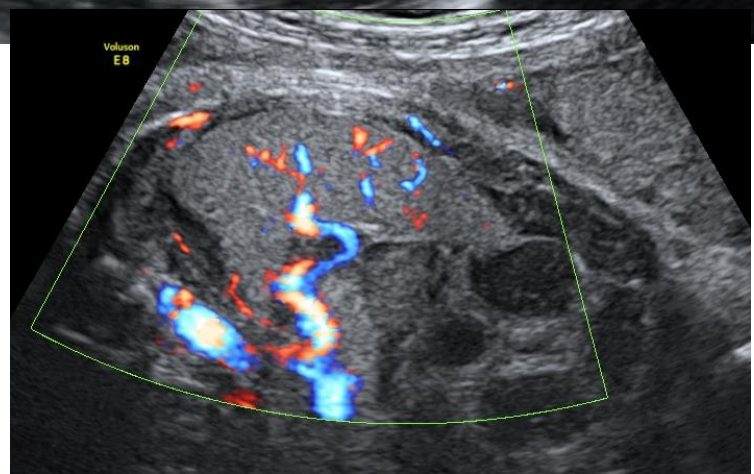






Ventriculomegaly: Cytomegalovirus

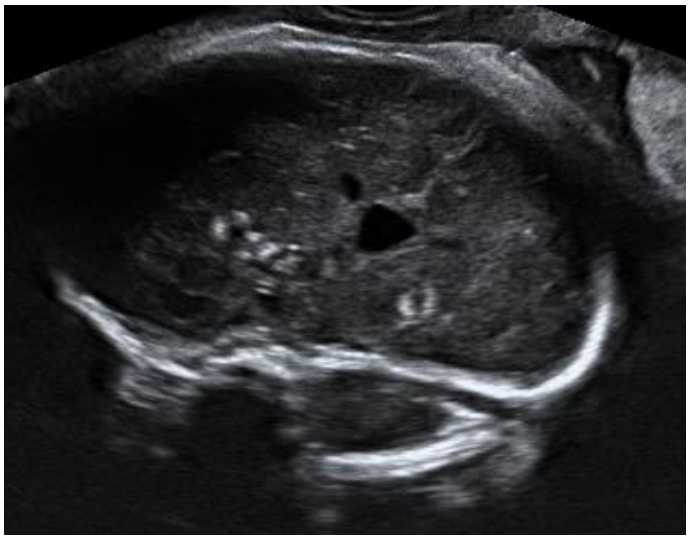


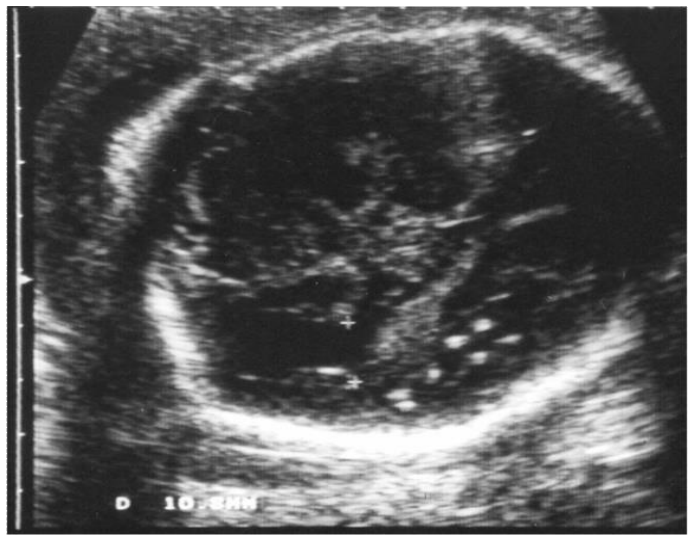


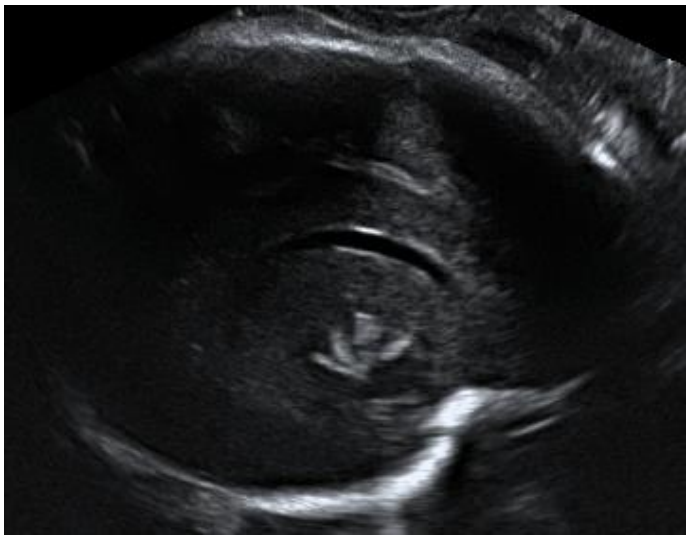
Look for other infectious symptoms:
Placenta, spleen, liver, IUGR…

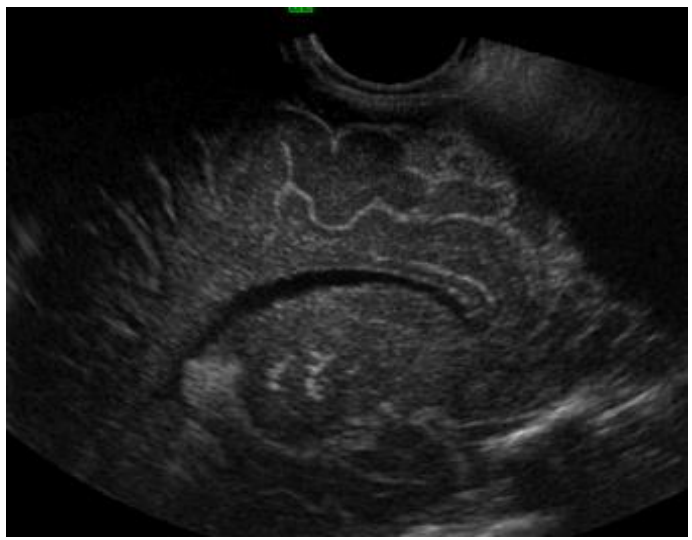
Ventriculomegaly: Cytomegalovirus

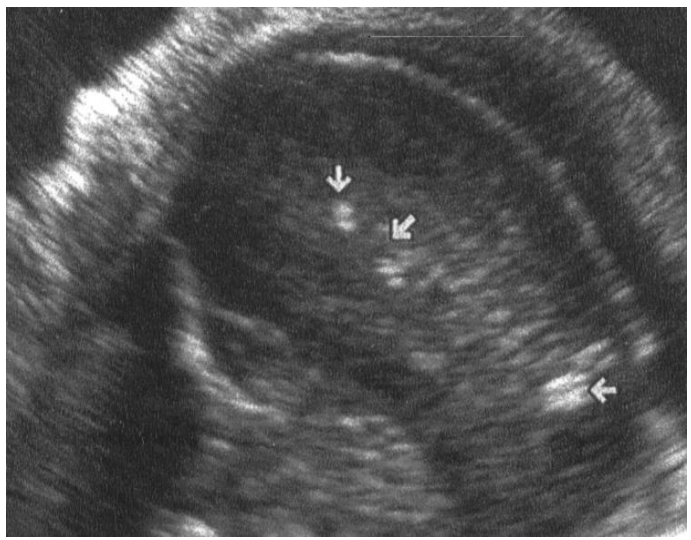
Anomalies





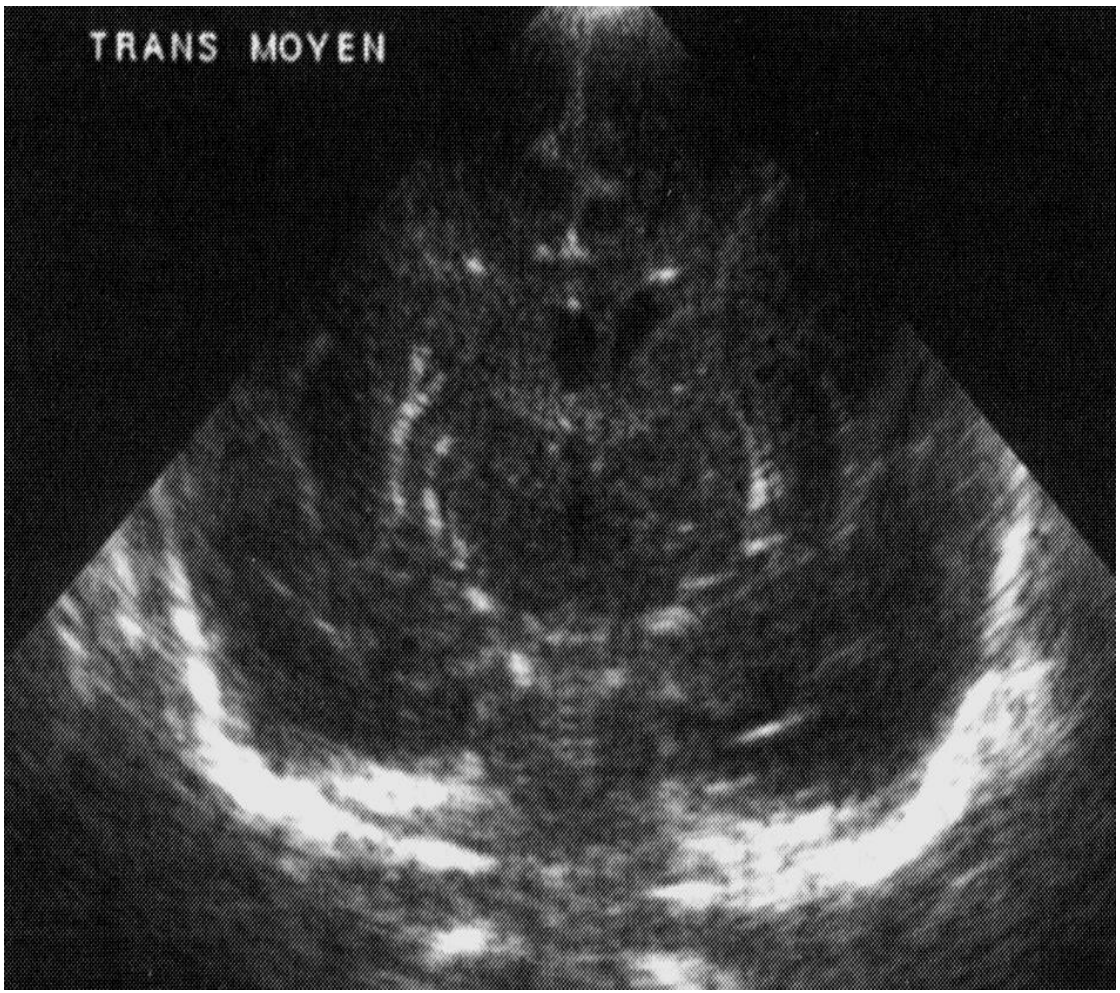


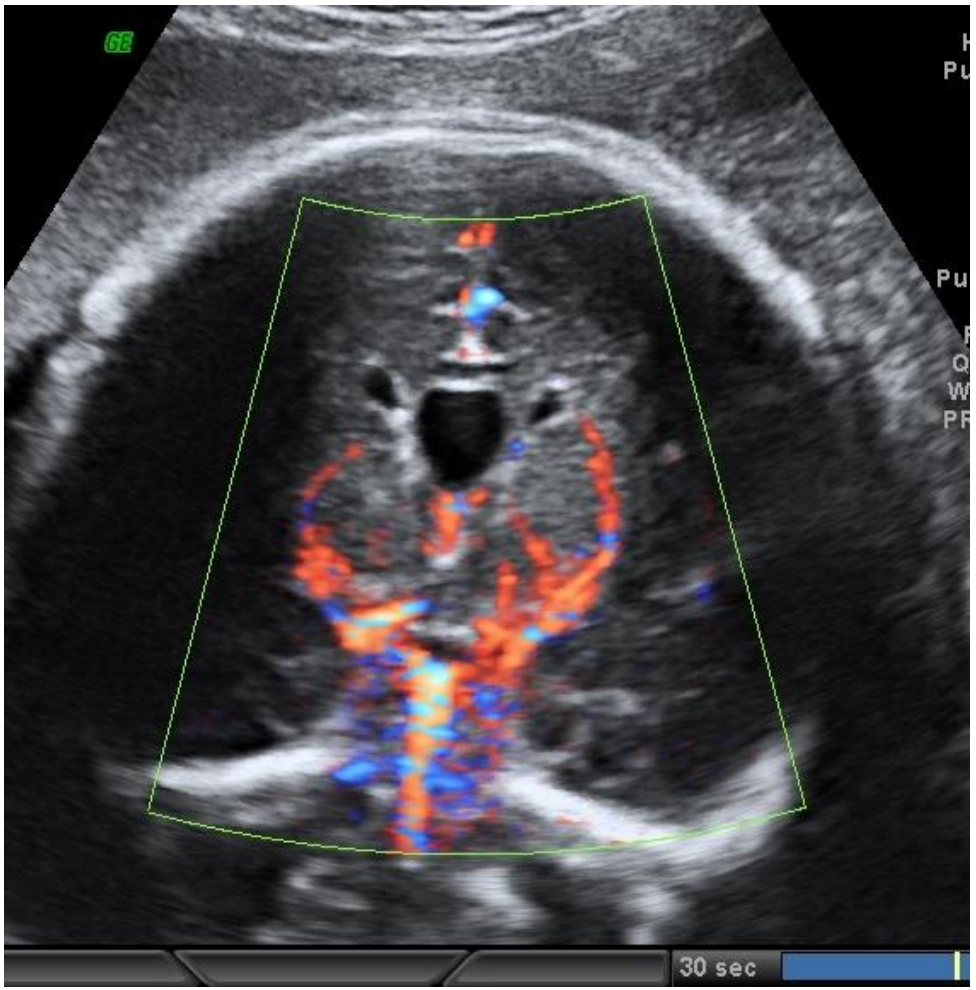




Laurent J Salomon

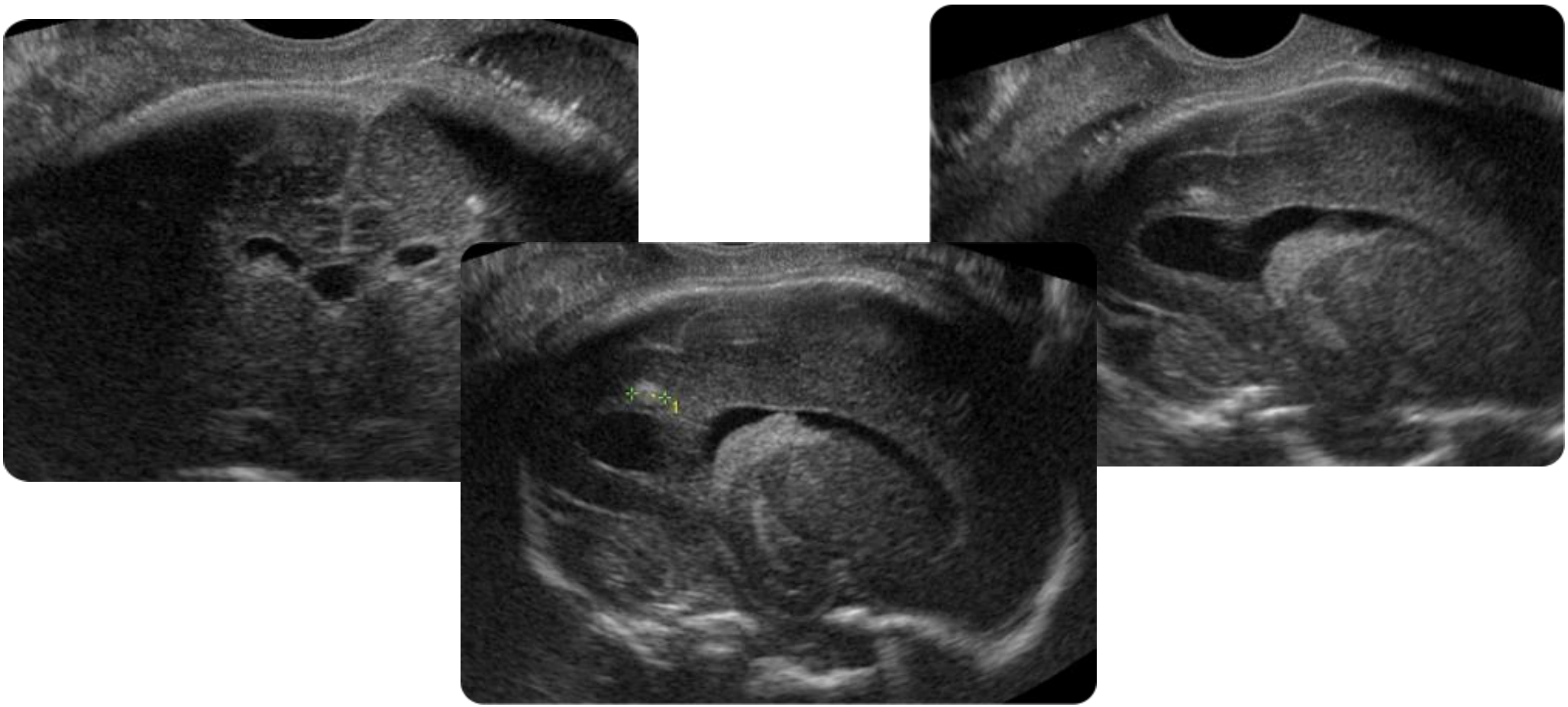
Ventriculomegaly: Cytomegalovirus





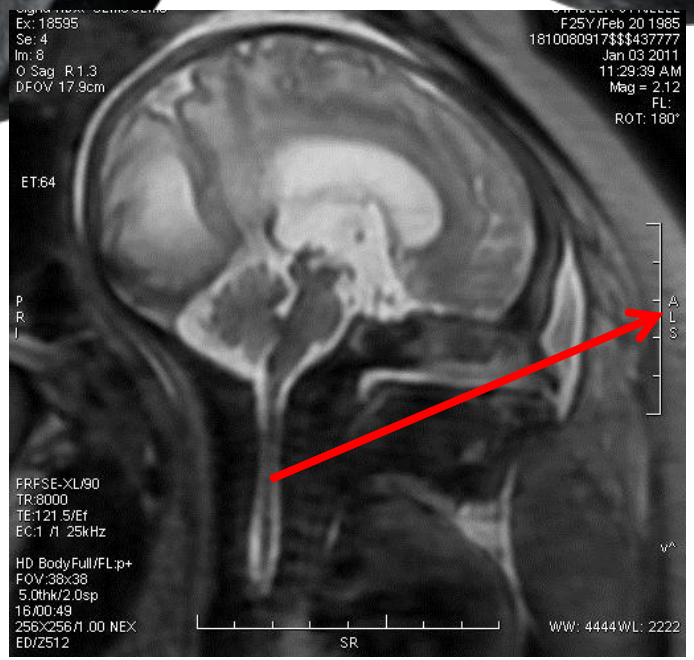
Calcifications of the thalamic vessels "candlestick"

Ventriculomegaly :Toxoplasmosis



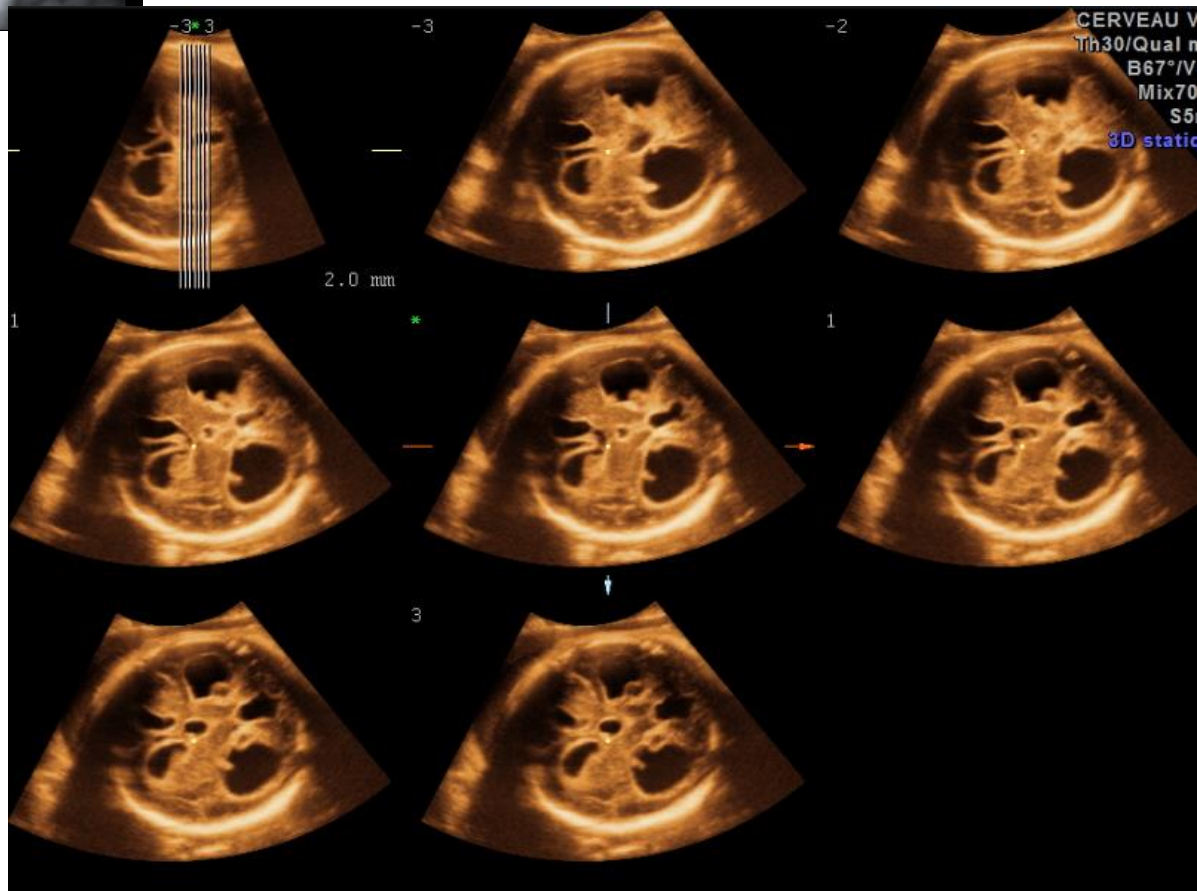
Ventriculomegaly , Calcifications

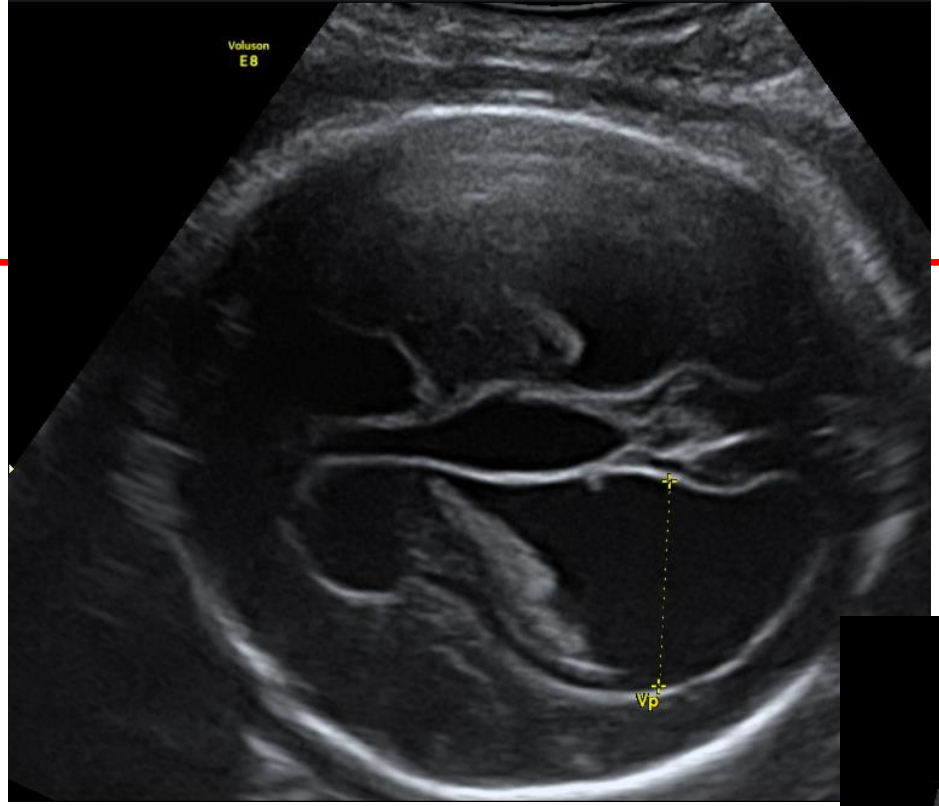
Ventriculomegaly : Acqueduc stenosis



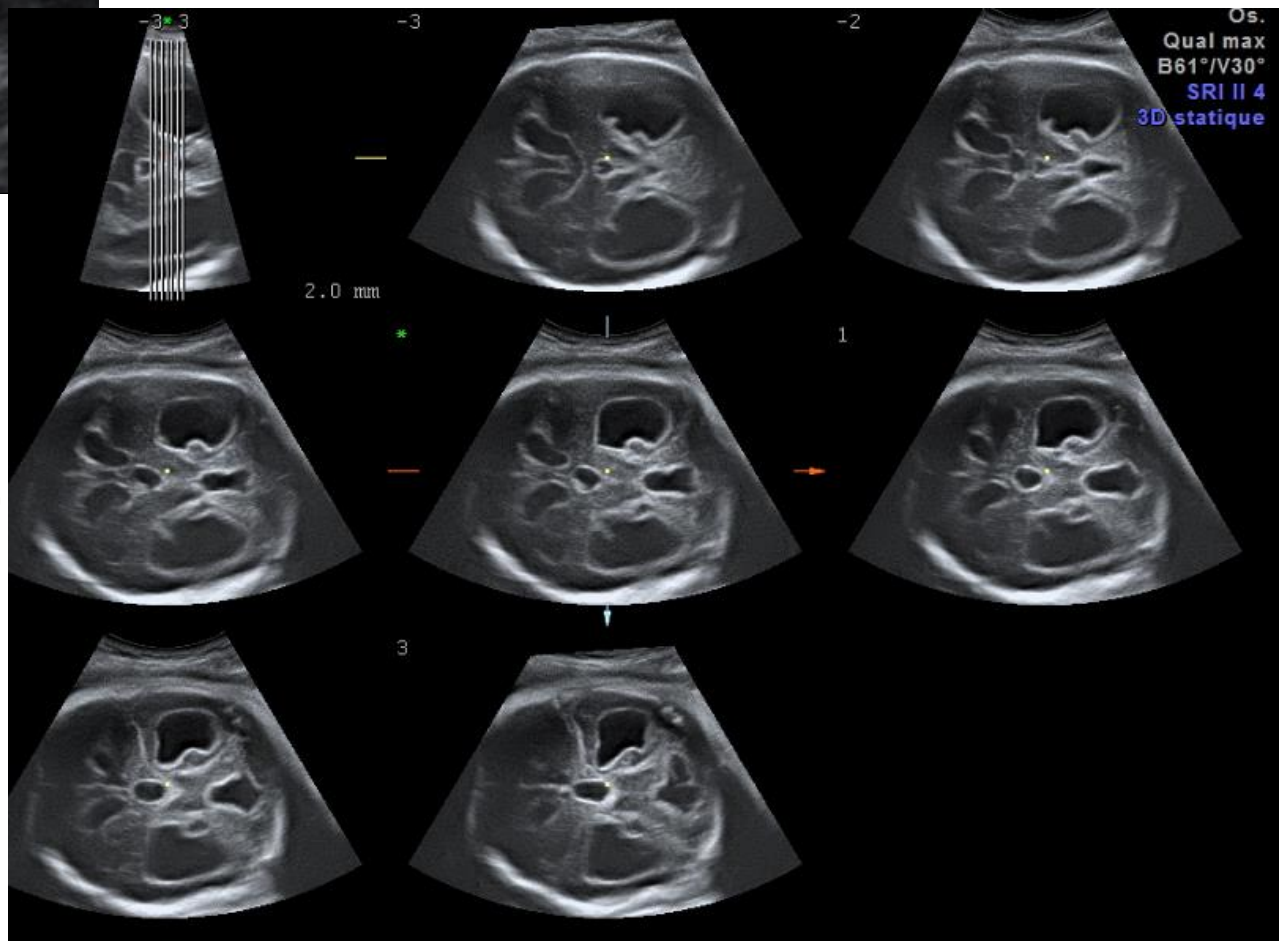
Ventriculomegaly : Intraventricular hemorrhage

- Allo immune thrombopenia ?
- Coagulation anomaly ?…



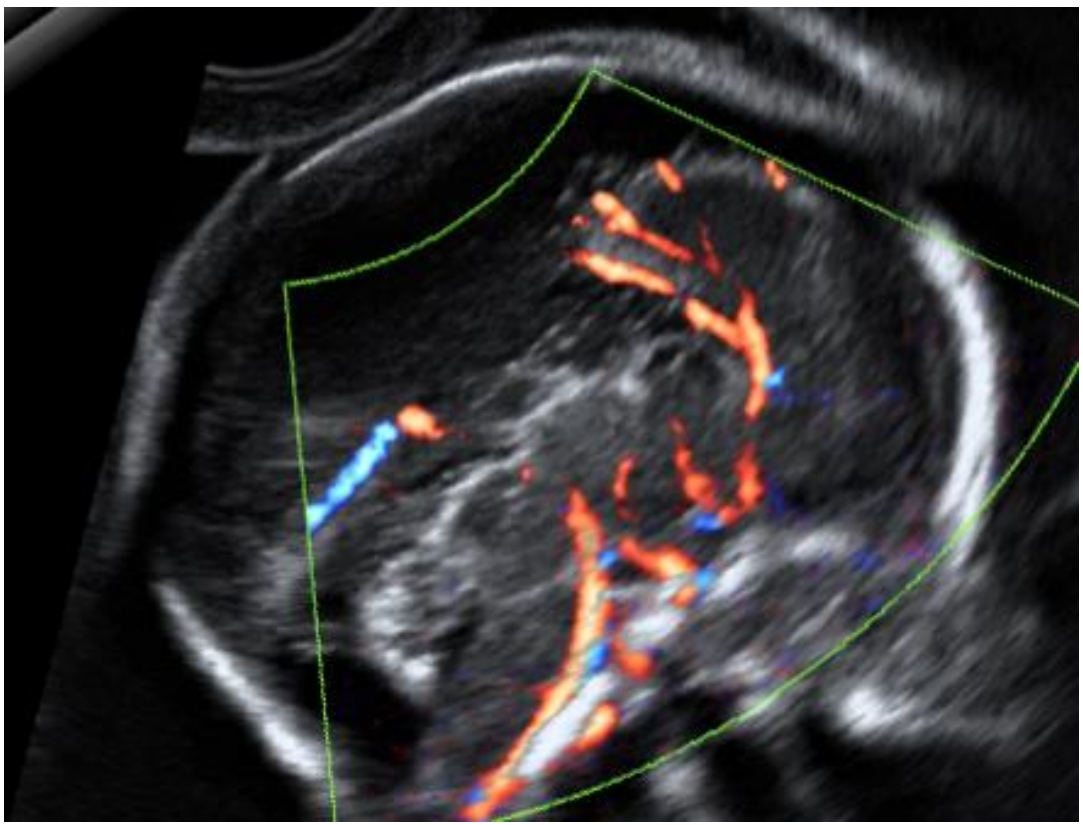


Ventriculomegaly : Intraventricular hemorrhage



- Allo immune thrombopenia ?
- Coagulation anomaly ?…

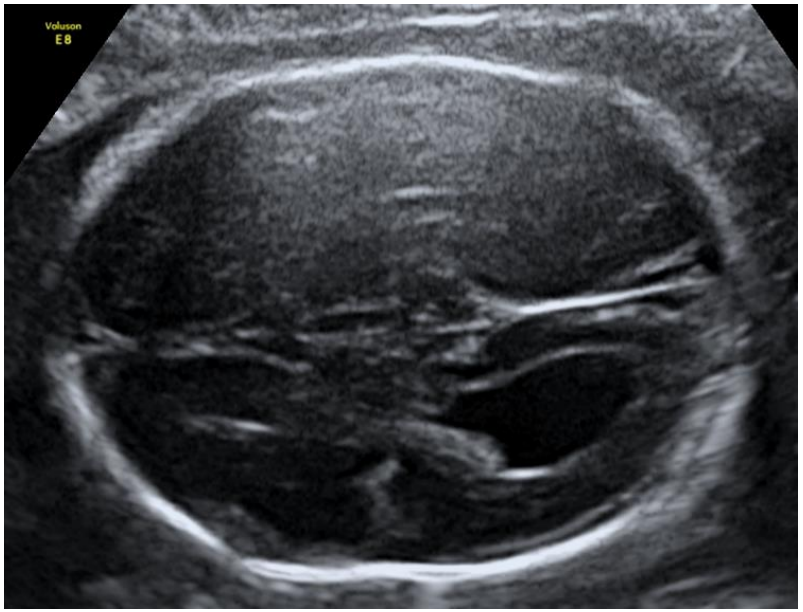
Ventriculomegaly & Corpus callosum agenesis

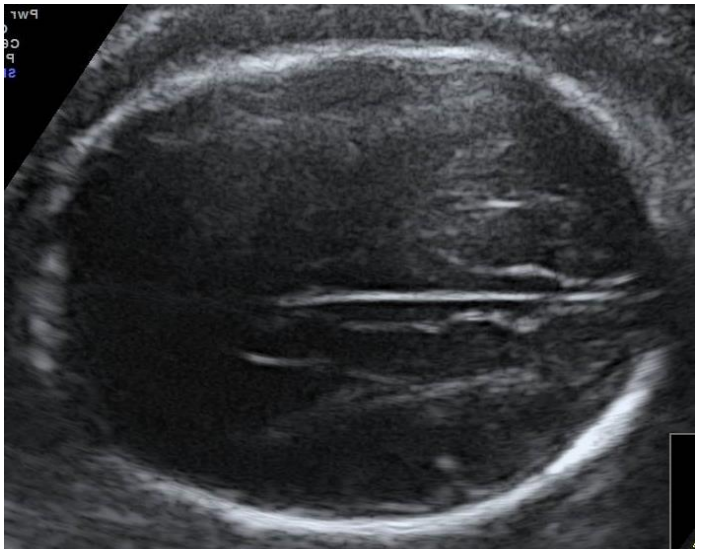


Corpus callosum agenesis

Abnormal shape of the frontal horns

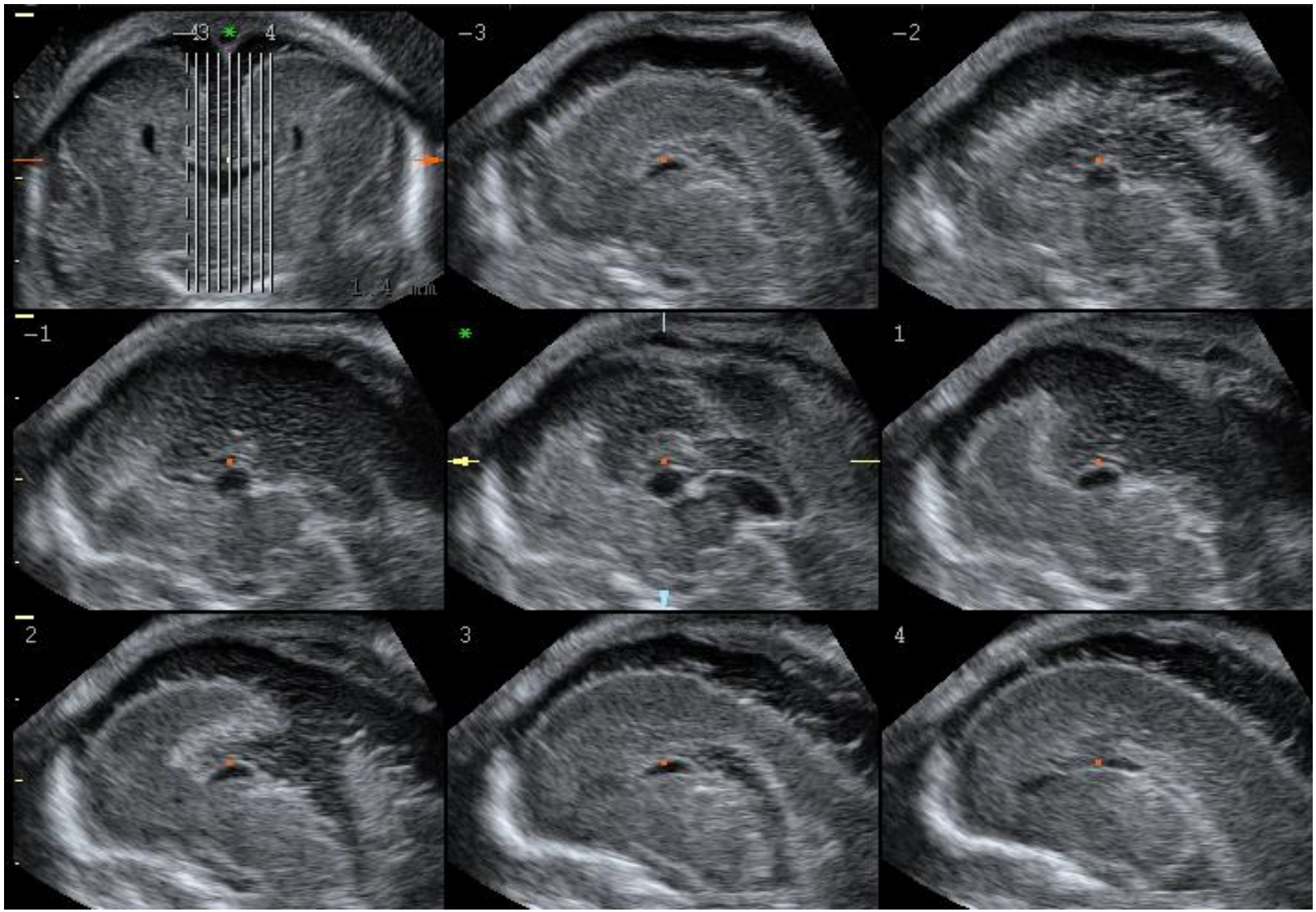
Ventriculomegaly
Colpocephaly



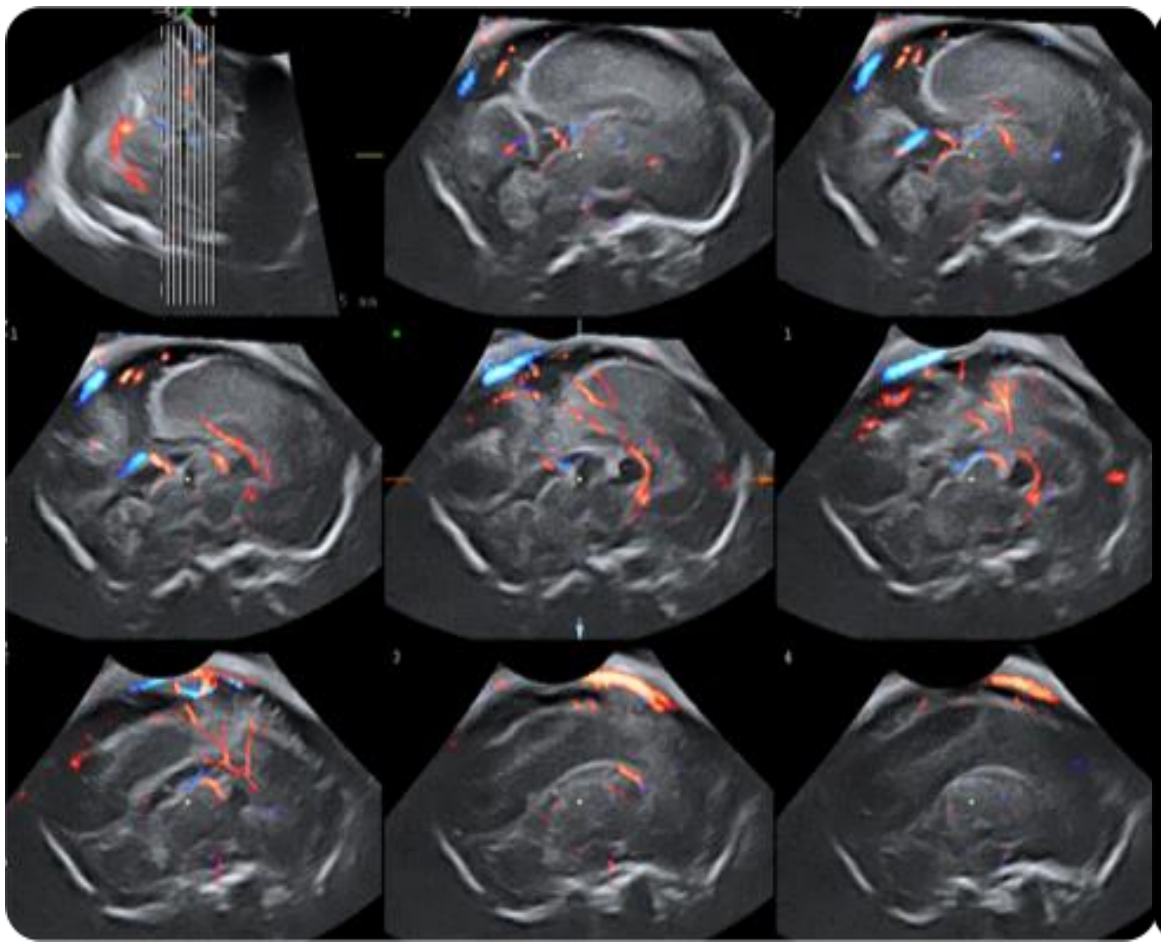


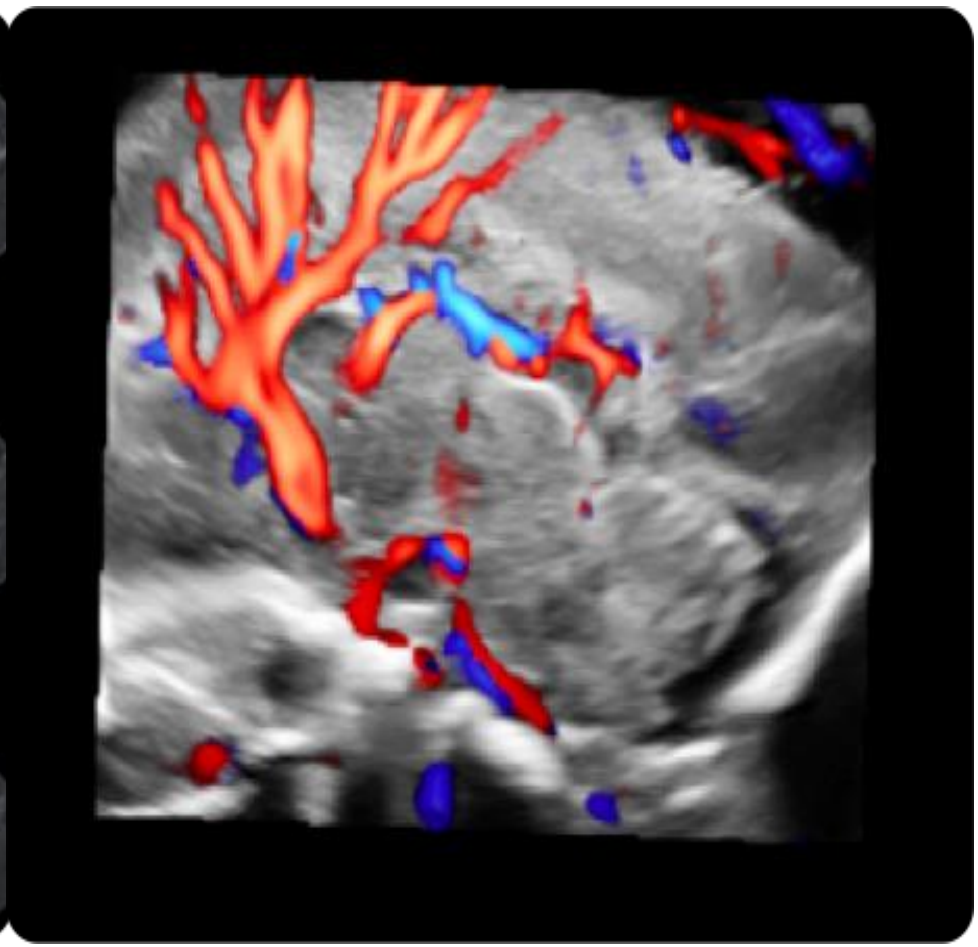
Triple leaf"

Corpus callosum agenesis



Corpus callosum agenesis





Corpus callosum agenesis

Abnormal gyration

Laurent J Salomon

Ultrasound Obstet Gynecol 2012; **40**: 513–521
Published online in Wiley Online Library (wileyonlinelibrary.com). **DOI:** 10.1002/uog.12315

Counseling in fetal medicine: agenesis of the corpus callosum

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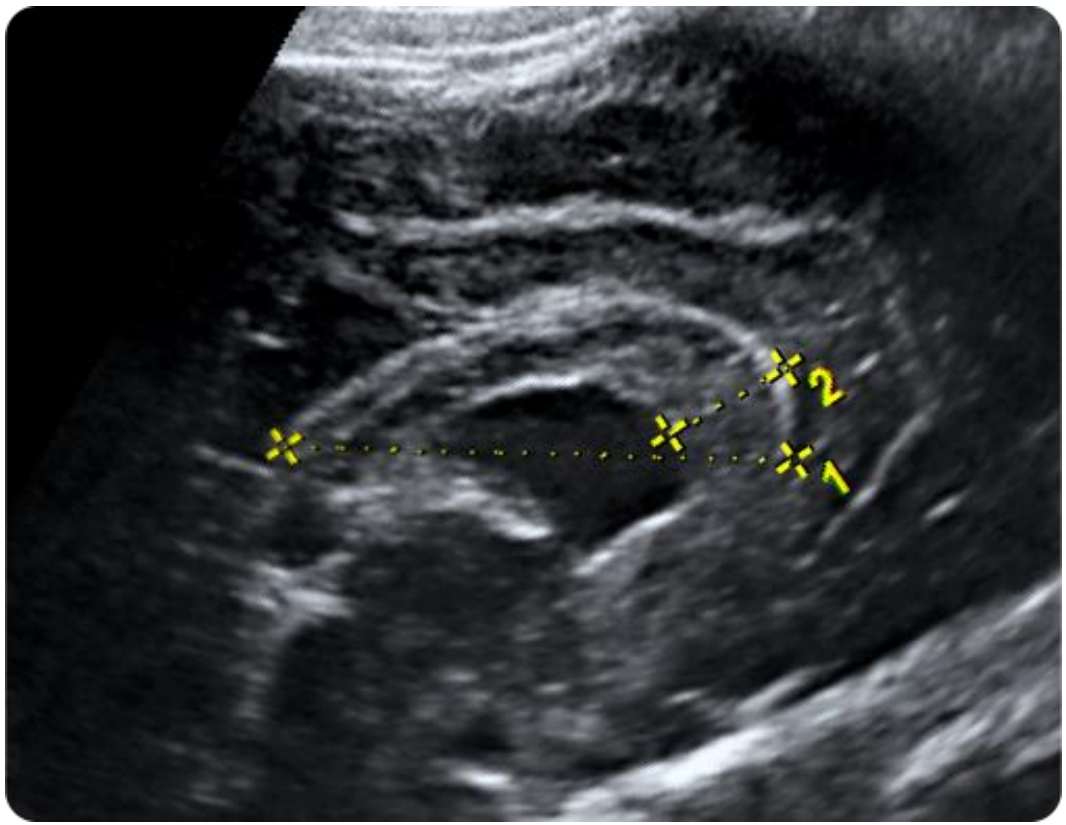
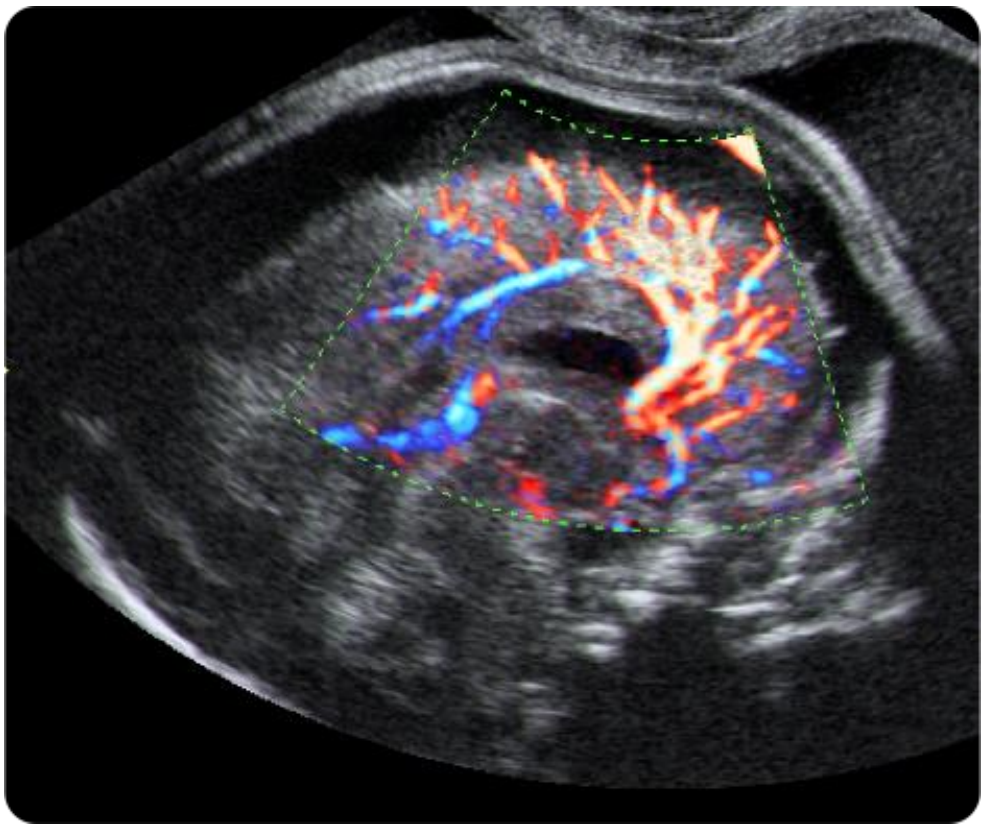
**Fetal Medicine Unit, Academic Department of Obstetrics and Gynaecology, St George's, University of London, London, UK; †Department of Clinical Genetics, St George's, University of London, London, UK; ‡Department of Neuroradiology, St George's Healthcare N*

Reference	*Year*	*Type of ACC*	*Cases with chromosomal abnormality* (n (%))	*Cases with other brain abnormality* (n (%))
Serur[13]	1988	Both	2/33 (6.1)	—
Bertino[23]	1988	Both	—	3/7 (42.9)
Blum[22]	1990	Both	—	8/16 (50)
Pilu[5*]	1993	Both	6/29 (20.7)	10/35 (28.6)
Vergani[4]	1994	Both	1/14 (7.1)	5/14 (35.7)
Bennett[8]†	1996	Both	2/10 (20)	3/14 (21.4)
D'Ercole[11]	1998	Both	0/14 (0)	9/14 (64.3)
Sonigo[12]	1998	Both§	—	30/50 (60)
Marszal[26]	2000	NS	2/7 (28.6)	—
Dos Santos[25]	2002	Complete	3/17 (17.6)	—
Shevell[6]	2002	Both	3/24 (12.5)	—
Glenn[9]	2005	Both	—	8/8 (100)
Bedeschi[15]	2006	Both	7/62 (11.3)	—
Volpe[2]	2006	Partial	3/18 (16.7)	8/19 (42.1)
Pisani[16]	2006	Complete	0/9 (0)	—
Fratelli[10]	2007	Complete	33/117 (28.2)	30/117 (25.6)
Chadie[17]	2008	Both	0/13 (0)	—
Schell-Apacik[3]	2008	Both	8/41 (19.5)	—
Tang[20]	2009	Complete	—	27/29 (93.1)
Cignini[24]	2010	Complete	1/17 (5.9)	—
Ghi[7]	2010	Partial	—	5/14 (35.7)
Li[14]‡	2012	Complete	12/41 (29.3)	27/41 (65.9)
Total			83/466 (17.8)	173/378 (45.8)

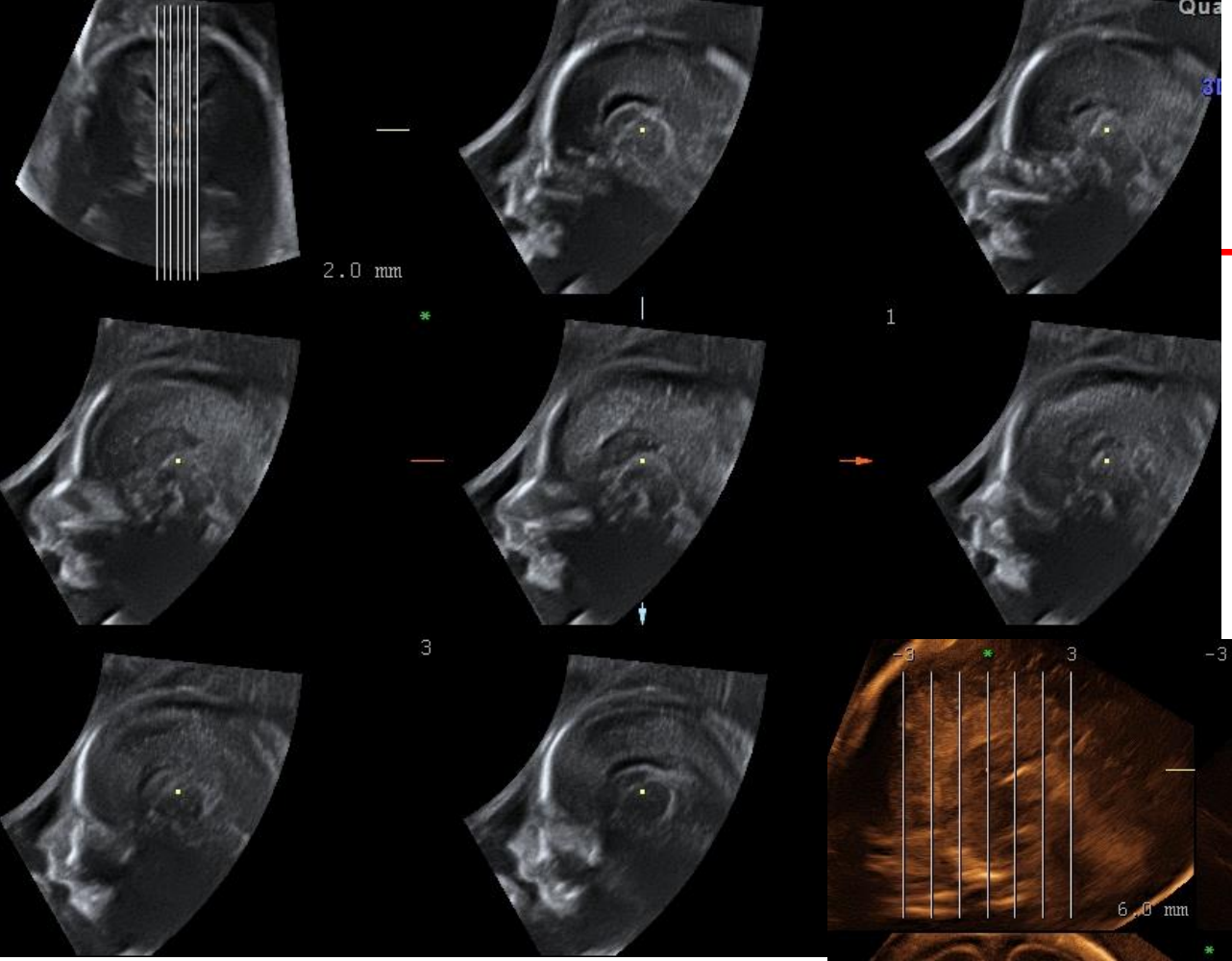
Denominators in some studies may differ because karyotype was not reported in all cases. *Includes the paper by Sandri *et al.*[21]. †Excludes one case of holoprosencephaly. ‡Only includes cases of complete ACC. §Not clearly specified whether ACC or other callosal abnormalities. Both, both partial and complete ACC; NS, not stated.

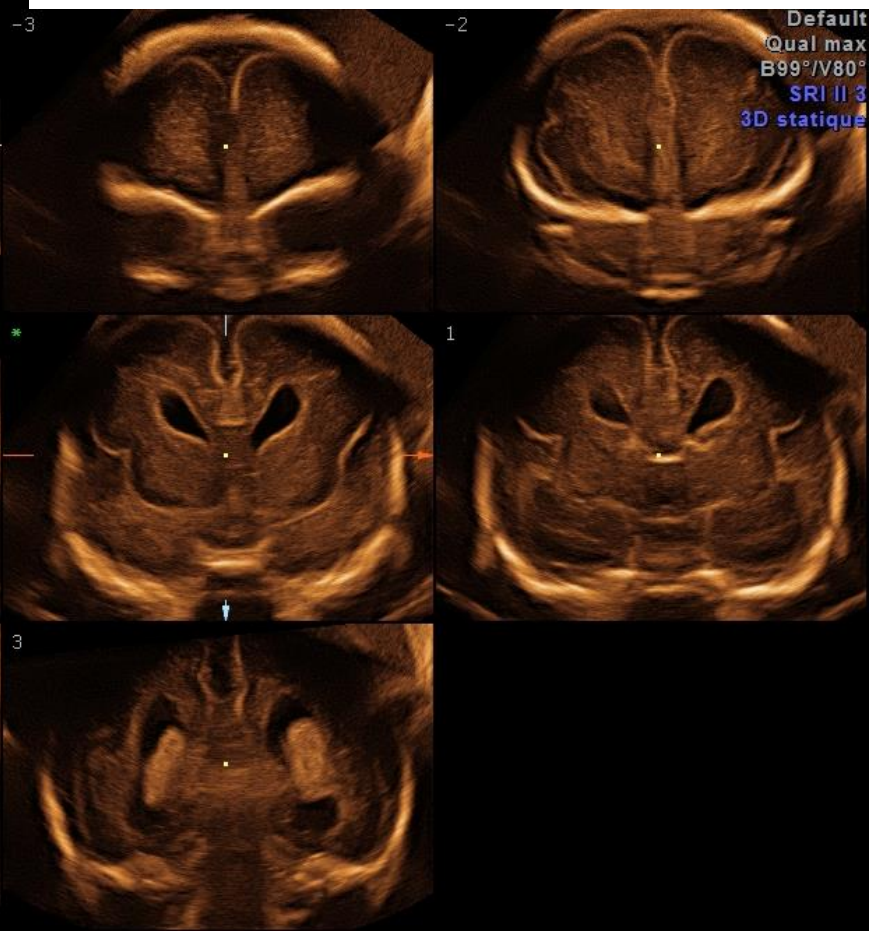
Trickier : Dysgenesis, short Corpus Callosum

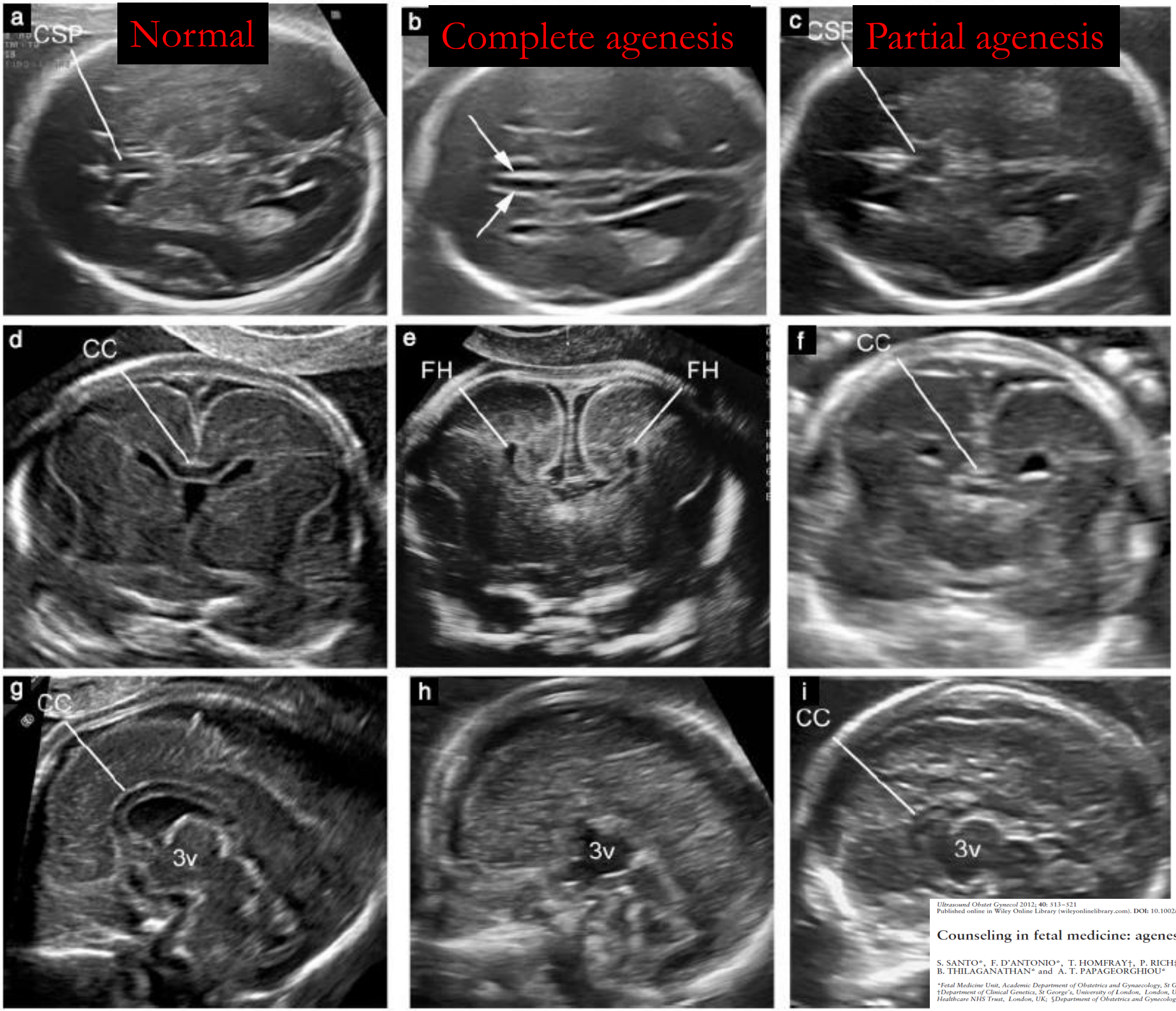




Dysgenesic Corpus Callosum







Ultrasound Obstet Gynecol 2012; **40**: 513–521
Published online in Wiley Online Library (wileyonlinelibrary.com). **DOI:** 10.1002/uog.12315

Counseling in fetal medicine: agenesis of the corpus callosum

S. SANTO*, F. D'ANTONIO*, T. HOMFRAY†, P. RICH‡, G. PILU§, A. BHIDE*, B. THILAGANATHAN* and A. T. PAPAGEORGHIOU*

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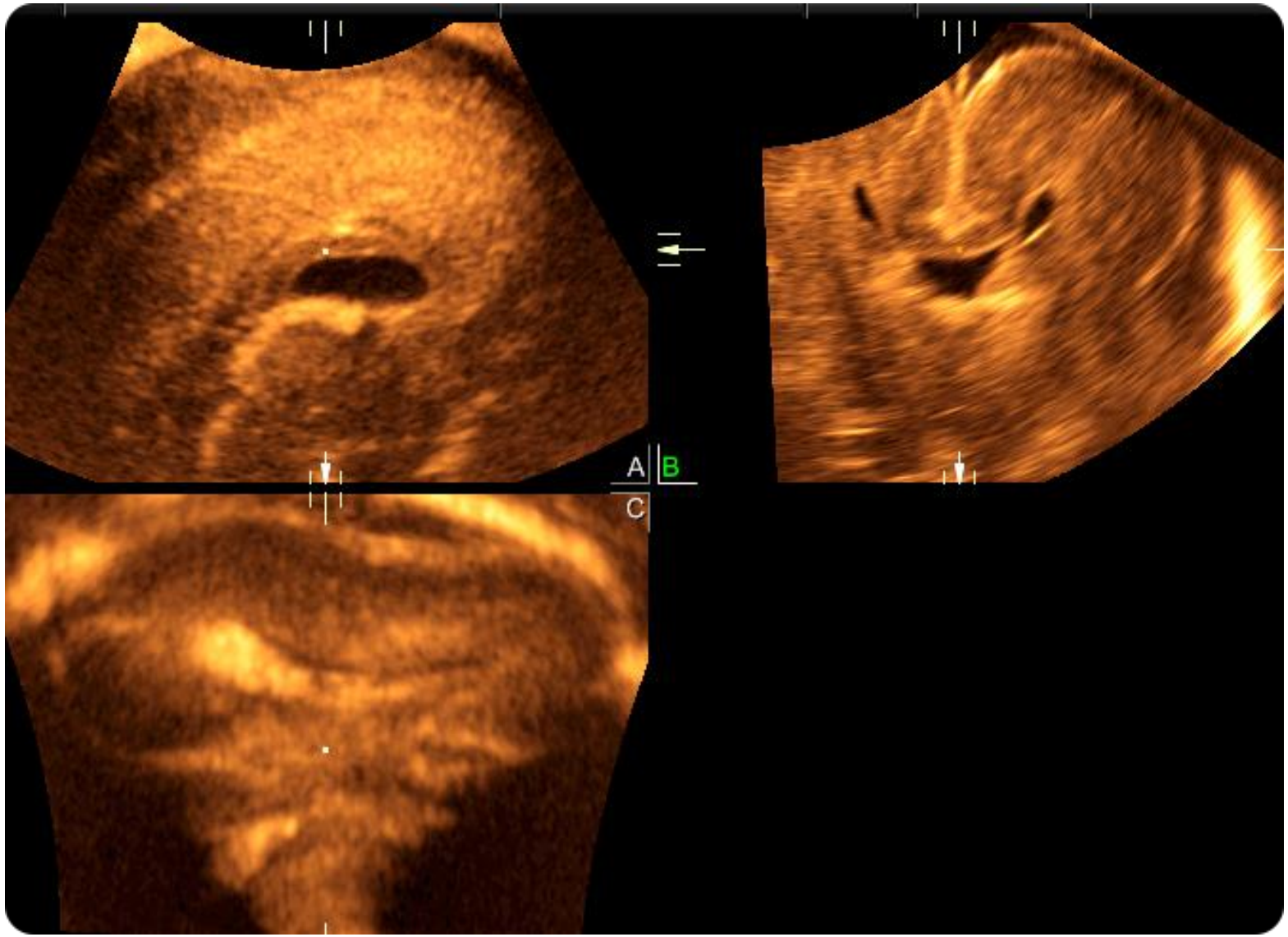
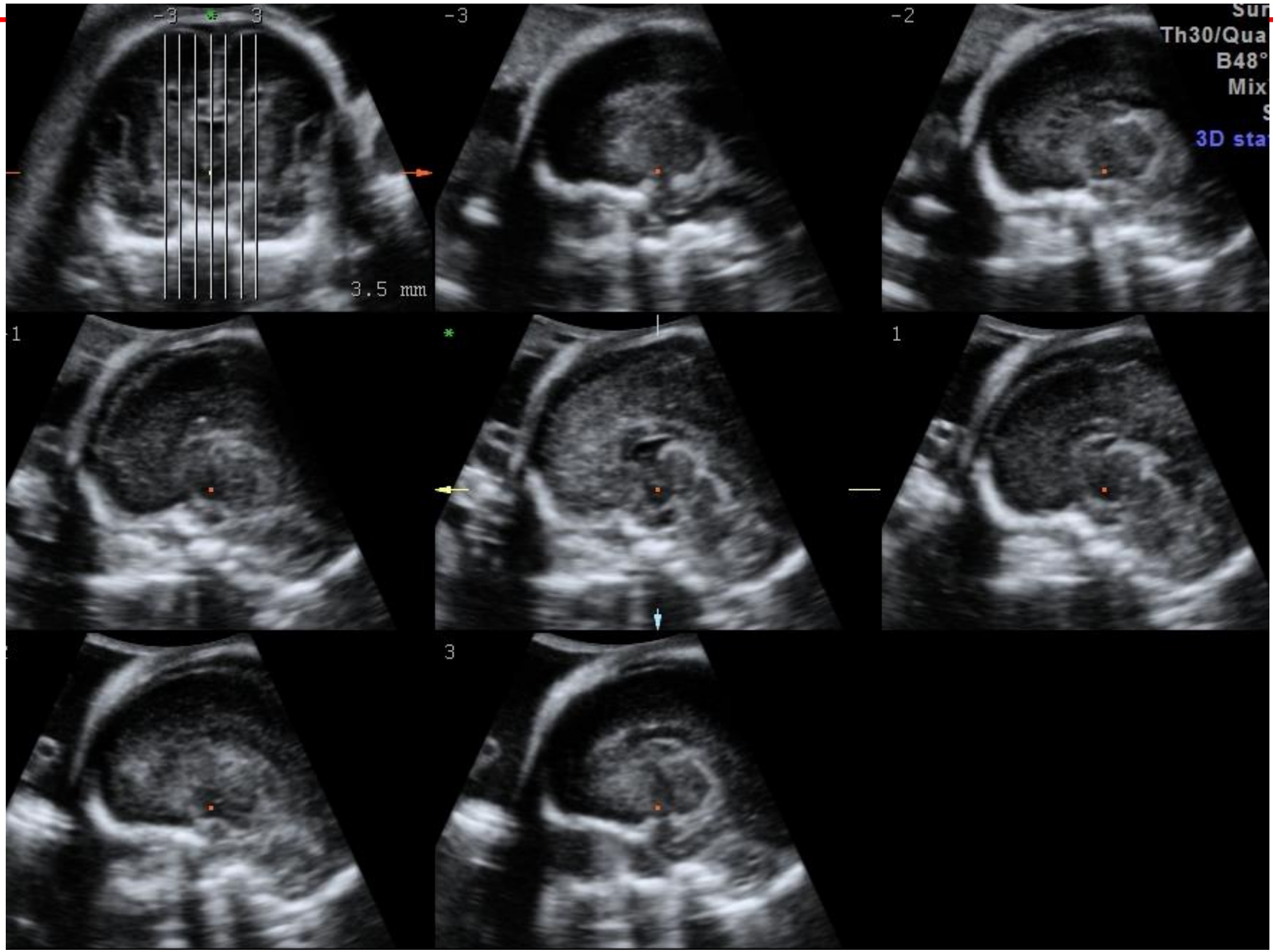
Small Corpus callosum



Small Corpus callosum



PRENATAL DIAGNOSIS
Prenat Diagn 2011; **31**: 1115–1119.
Published online 8 September 2011 in Wiley Online Library
(wileyonlinelibrary.com) **DOI**: 10.1002/pd.2840

Corpus callosum growth in normal and growth-restricted fetuses

Israel Goldstein[1]*, Ada Tamir[2], Albert E. Reece[3] and Zeev Weiner[1]

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[2]*Department of Community Medicine and Epidemiology, Rappaport Faculty of Medicine, Technion, Haifa, Israel*
[3]*Department of Obstetrics and Gynecology and Reproduvtive Science, University of Maryland, Baltimore, USA*

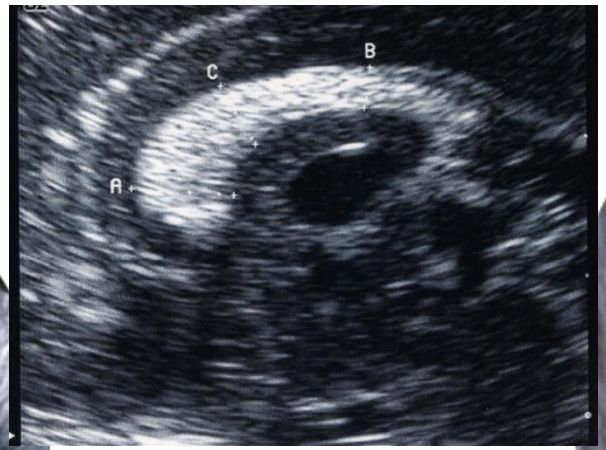
Table 1—Dimensions of the CC in the outer length (cm) throughout gestation of normal fetuses

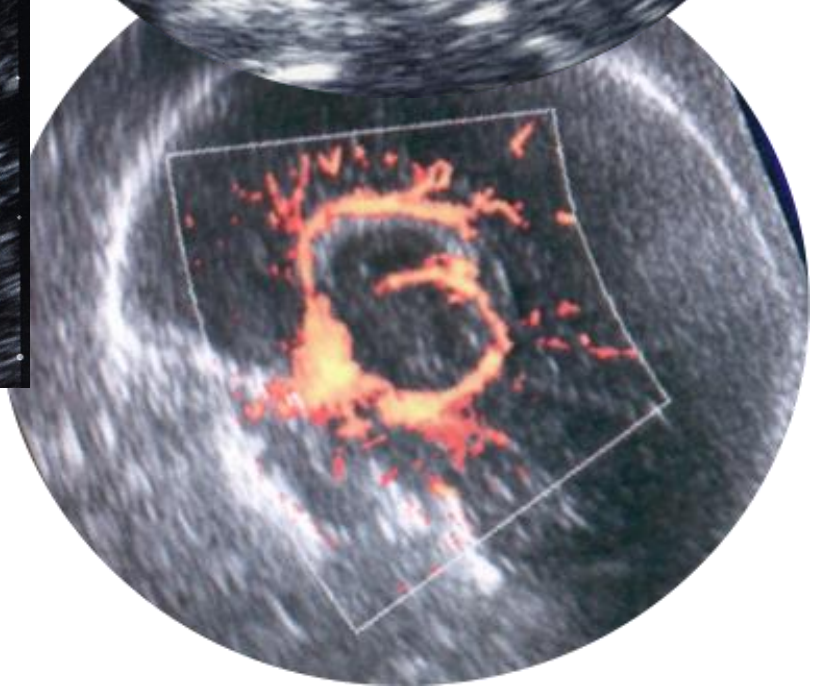
GA	Mean	SD	10th	25th	Median	75th	90th	N
17–18	1.149	0.250	0.808	0.913	1.145	1.385	1.510	12
19–20	1.686	0.288	1.281	1.508	1.675	1.890	2.049	20
21	2.253	0.214	2.026	2.100	2.170	2.380	2.636	15
22	2.611	0.235	2.254	2.430	2.580	2.805	2.898	21
23	2.765	0.198	2.495	2.650	2.765	2.878	3.025	44
24	2.911	0.179	2.628	2.820	2.930	3.020	3.188	43
25	3.118	0.200	2.834	3.020	3.120	3.255	3.428	25
26	3.359	0.212	3.116	3.240	3.330	3.440	3.658	17
27–28	3.424	0.211	3.050	3.240	3.450	3.600	3.650	19
29–30	3.838	0.290	3.450	3.640	3.790	4.085	4.320	13
31–33	3.945	0.302	3.444	3.770	3.980	4.195	4.330	17

Table 2—Dimensions of the CC lower margin (cm) throughout gestation of normal fetuses

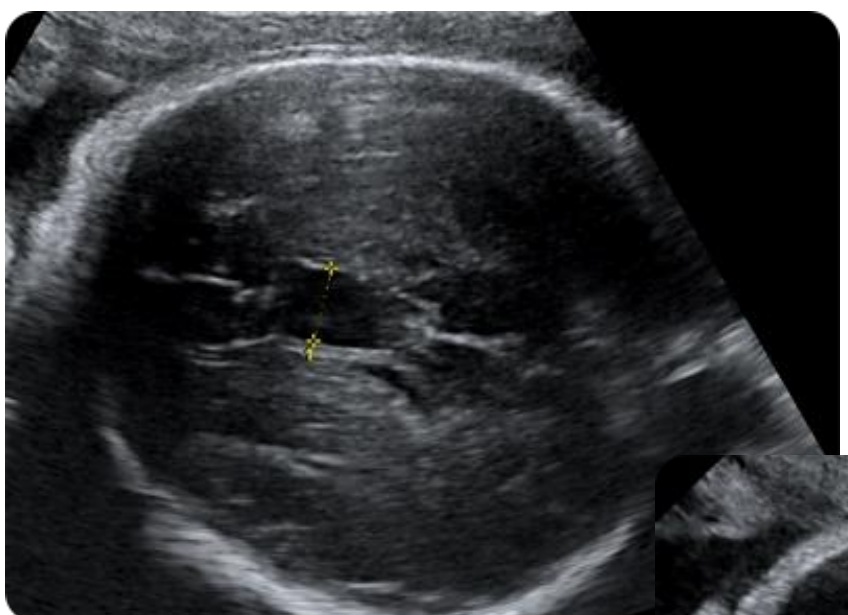
GA	Mean	SD	10th	25th	Media	75th	90th	N
17–18	0.909	0.178	0.665	0.750	0.885	1.098	1.164	12
19–20	1.315	0.281	0.950	1.150	1.250	1.530	1.670	19
21	1.741	0.177	1.518	1.600	1.730	1.860	2.010	15
22	2.068	0.245	1.728	1.870	2.040	2.245	2.432	21
23	2.178	0.195	1.920	2.063	2.185	2.280	2.455	44
24	2.296	0.157	2.098	2.160	2.310	2.380	2.526	43
25	2.481	0.232	2.098	2.360	2.480	2.625	2.820	25
26	2.682	0.212	2.492	2.605	2.640	2.760	2.964	17
27–28	2.751	0.212	2.480	2.610	2.780	2.870	3.010	19
29–30	3.132	0.213	2.924	2.975	3.070	3.200	3.572	13
31–33	3.213	0.222	2.948	3.015	3.200	3.360	3.588	17

Lipoma of the Corpus Callosum



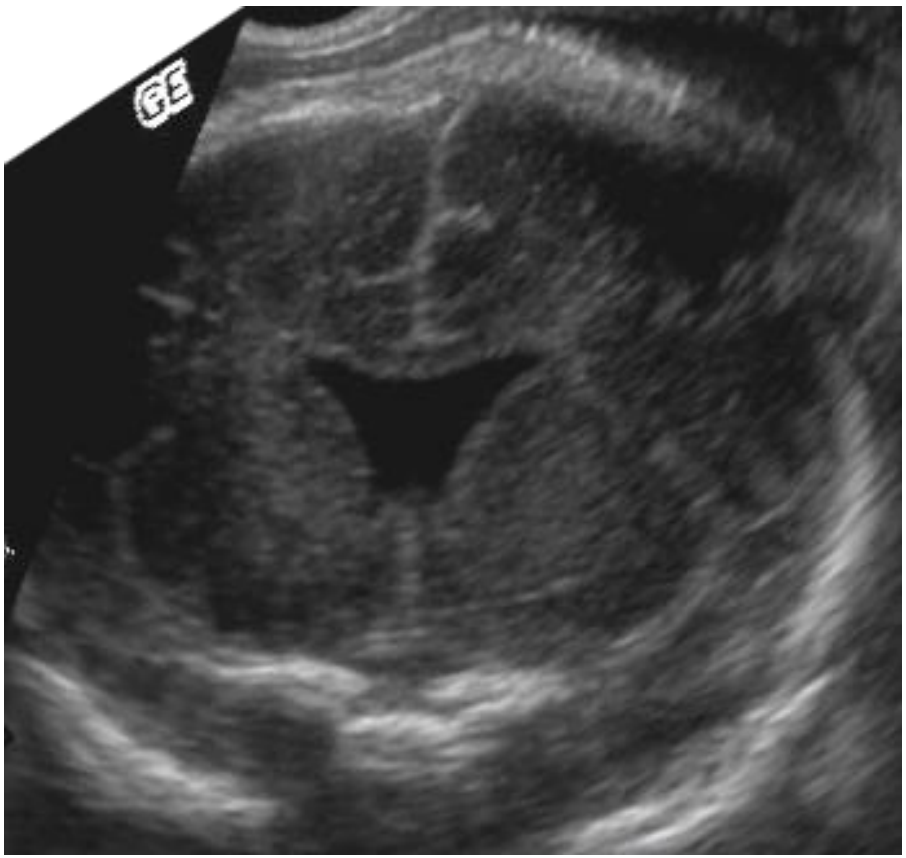


Cavum septum lucidum: large



Laurent J Salomon

Cavum septum lucidum: absent

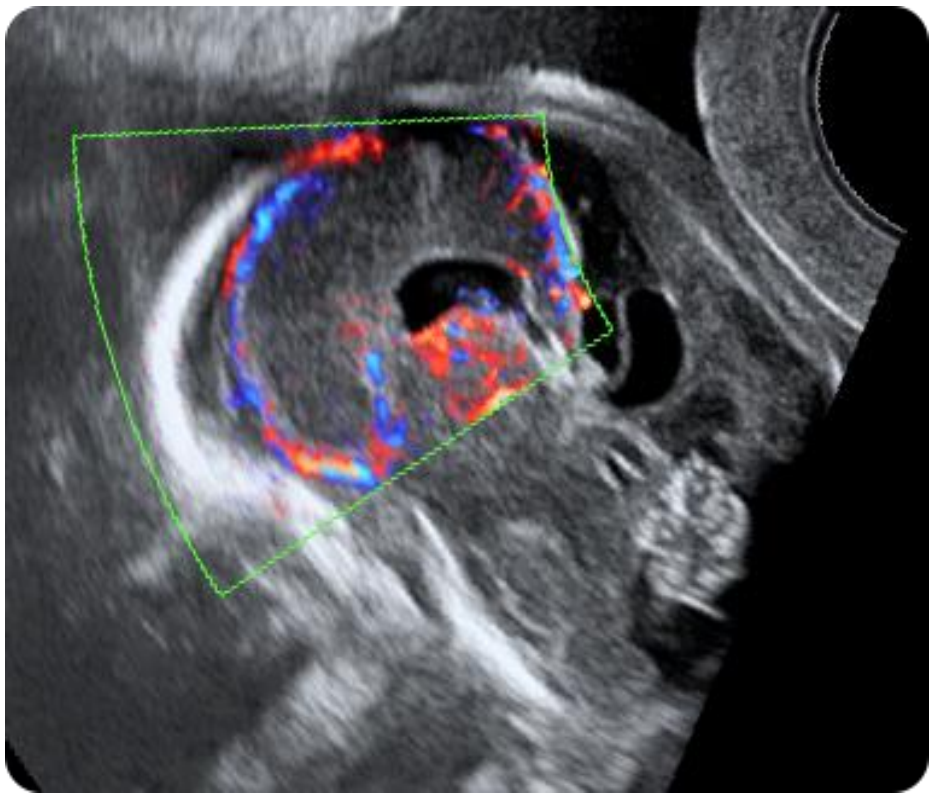


Septal agenesis

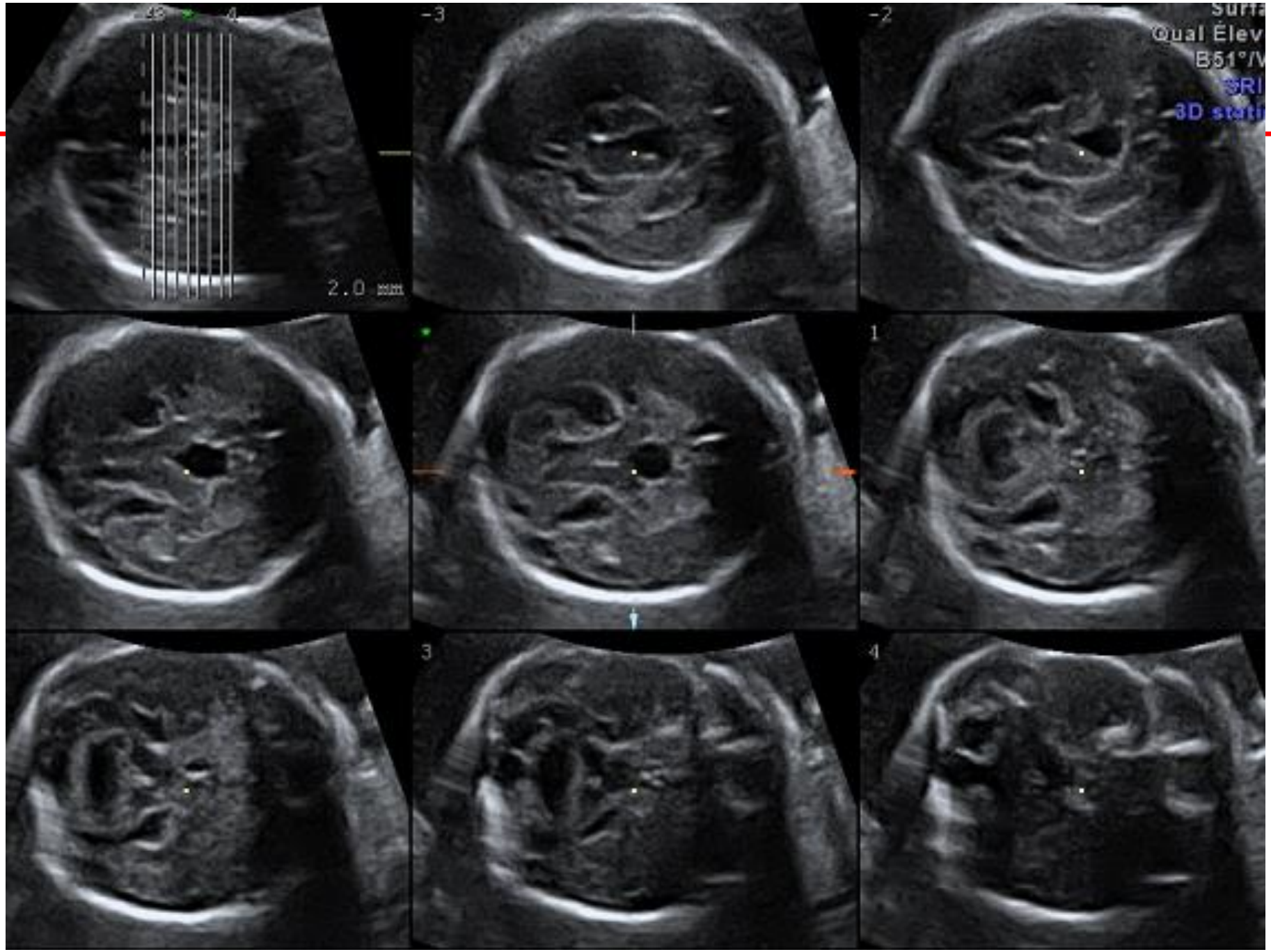
Lobar holoprosencephaly

Cavum septum lucidum: absent

Septal agenesis



Lobar holoprosencephaly



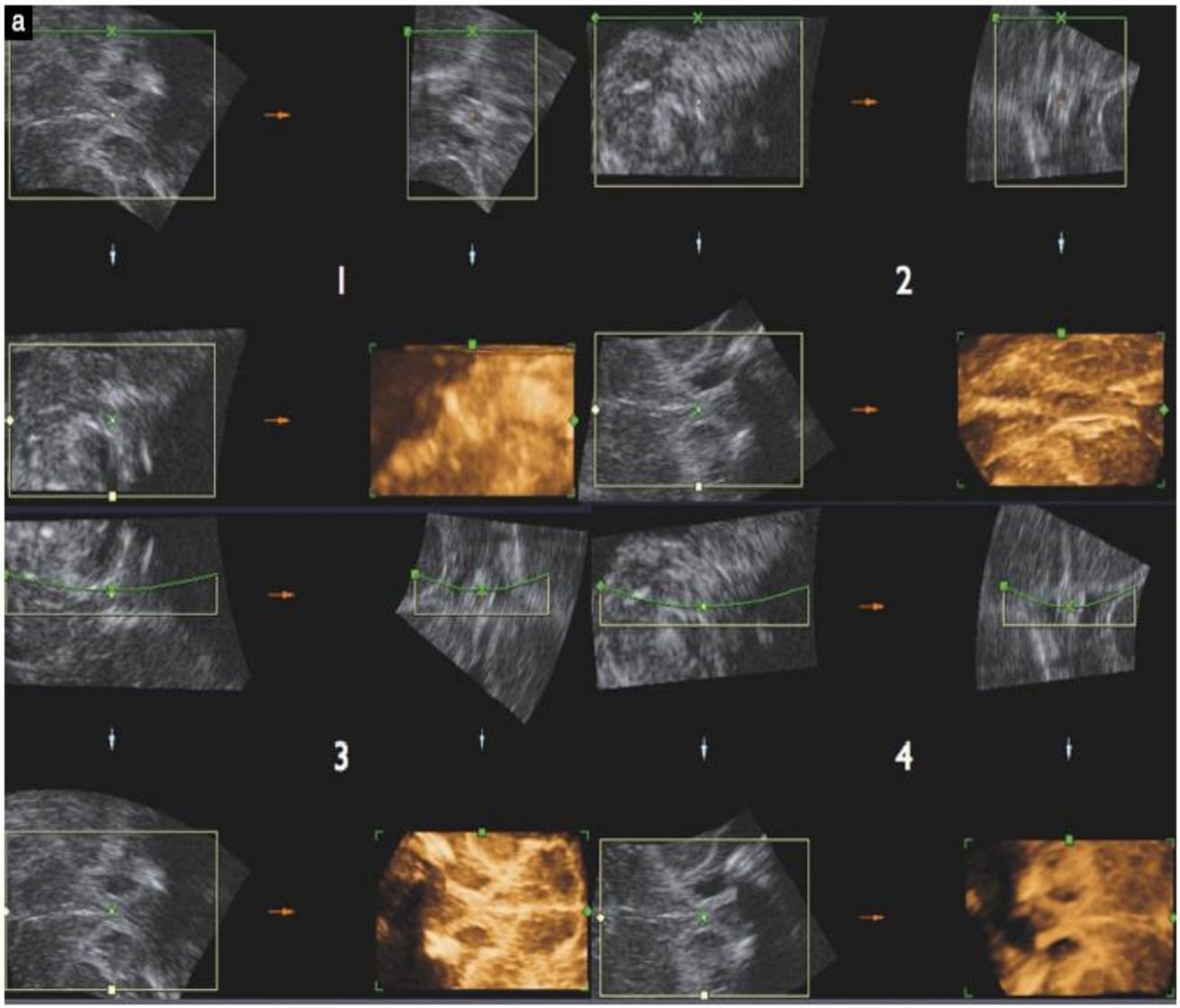
Semi-lobar holoprosencephaly

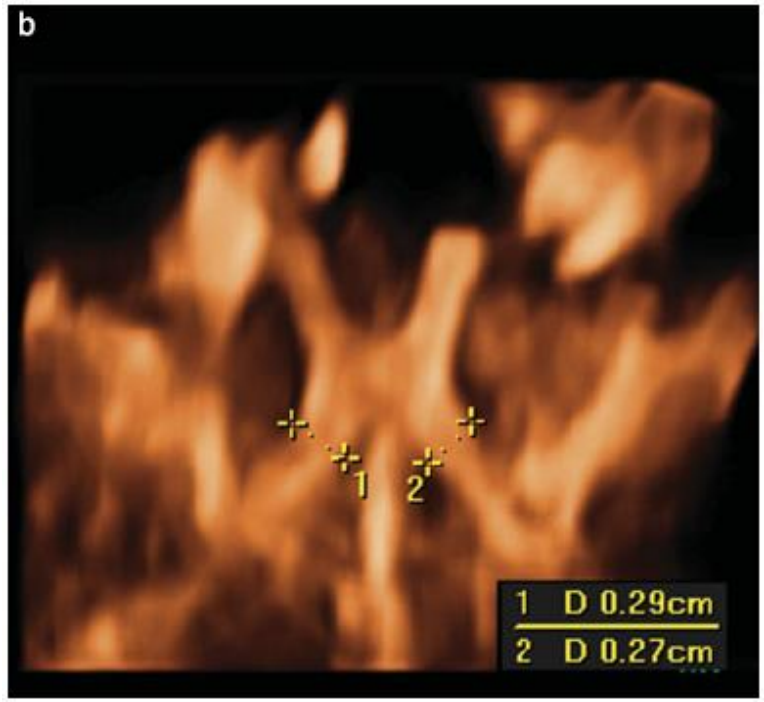
Ultrasound Obstet Gynecol 2011; **37**: 570–575
Published online in Wiley Online Library (wileyonlinelibrary.com). **DOI:** 10.1002/uog.8847

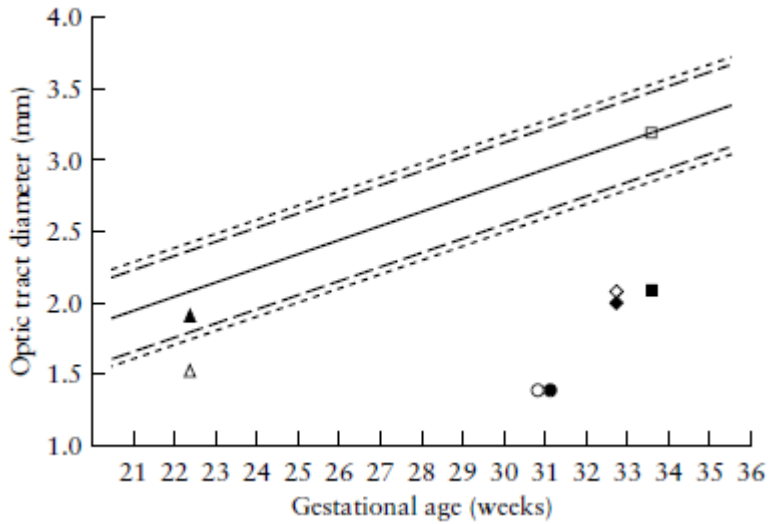
Role of three-dimensional ultrasound measurement of the optic tract in fetuses with agenesis of the septum pellucidum

J. P. BAULT*†‡, L. J. SALOMON†‡, L. GUIBAUD§ and R. ACHIRON¶

**Centre d'Echographies Ambroise Paré Les Mureaux, CHI Poissy Saint-Germain, Yvelines, France; †Maternité Necker-Enfants Malades, APHP, Université Paris Descartes, Paris, France; ‡SFAPE: Société Pour l'Amélioration des Pratiques en Echographie, Paris, France; §Imagerie Pédiatrique et Fœtale, Hôpital Femme Mère Enfant, Université Claude Bernard Lyon I, Lyon Bron, France; ¶Department of Obstetrics and Gynecology, Sheba Medical Center, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel*

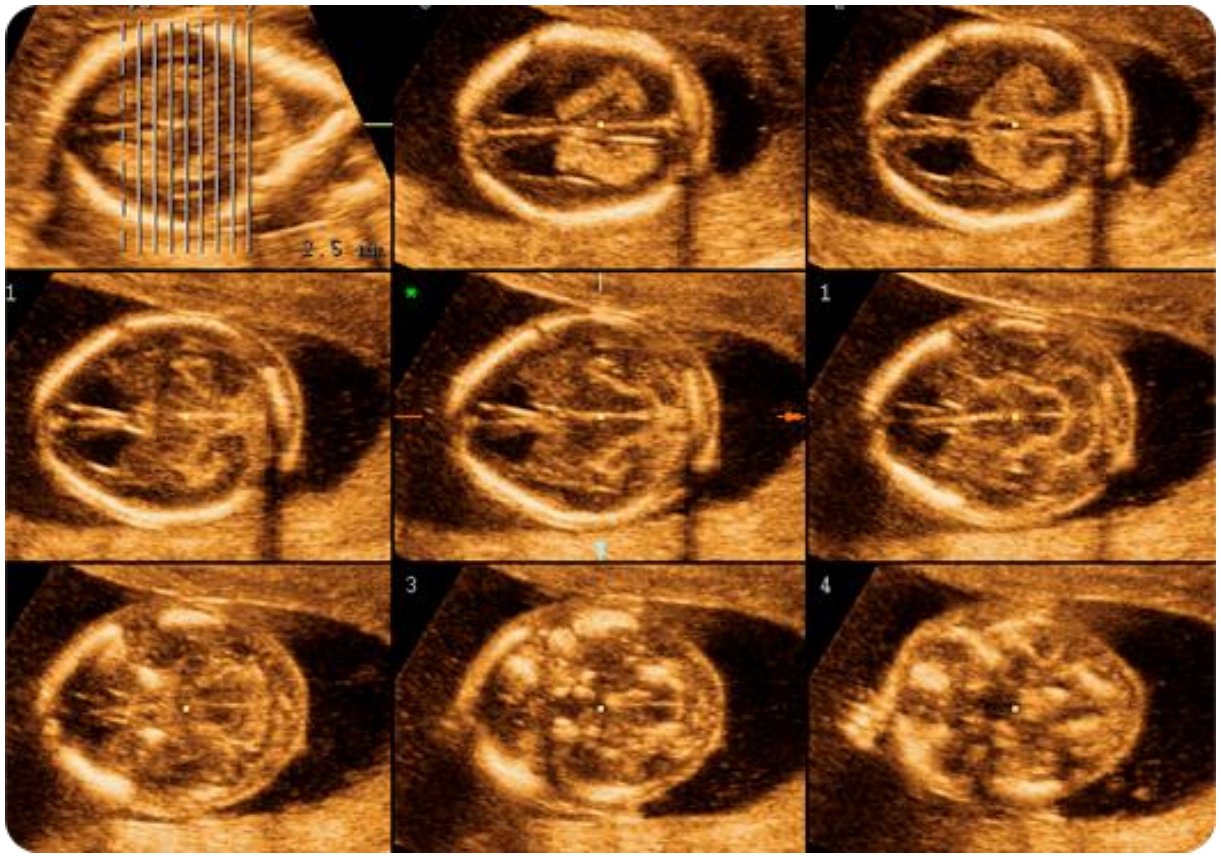


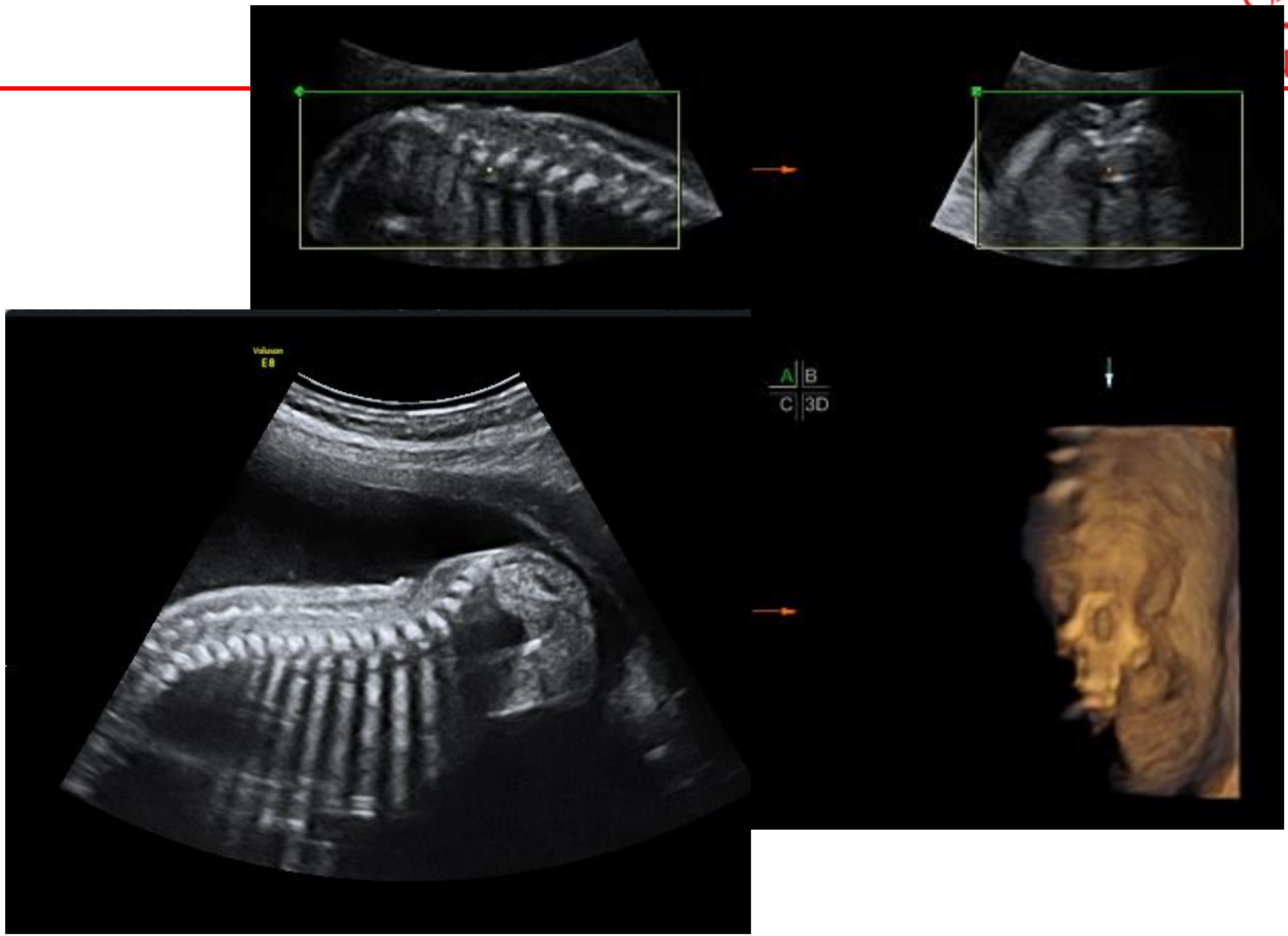




Posterior fossa anomalies: Abnormal shape of the cerebellum

Banana sign




Voluson
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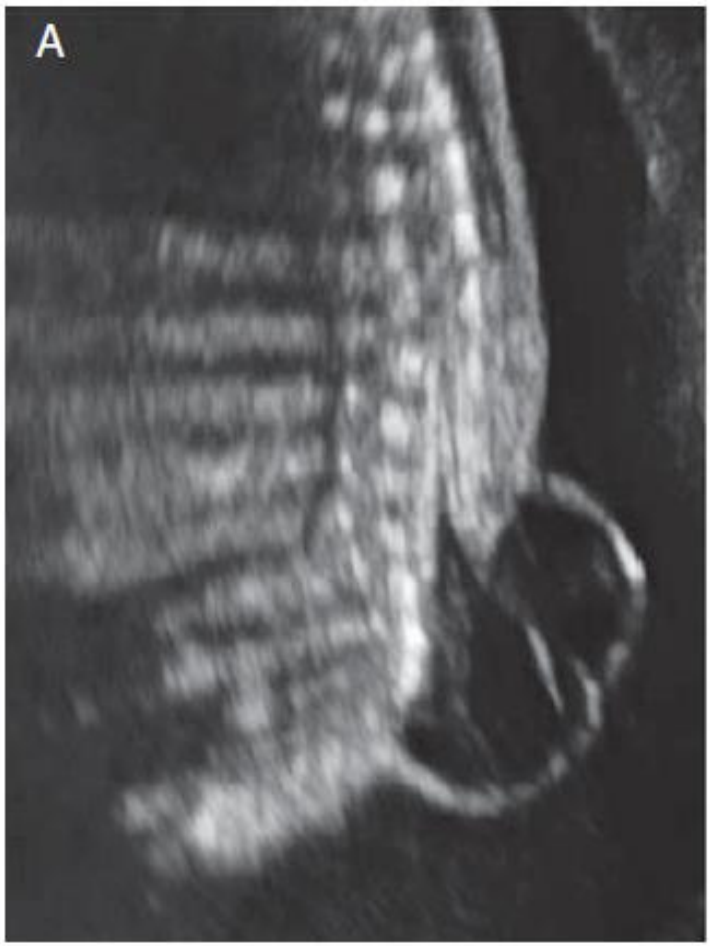
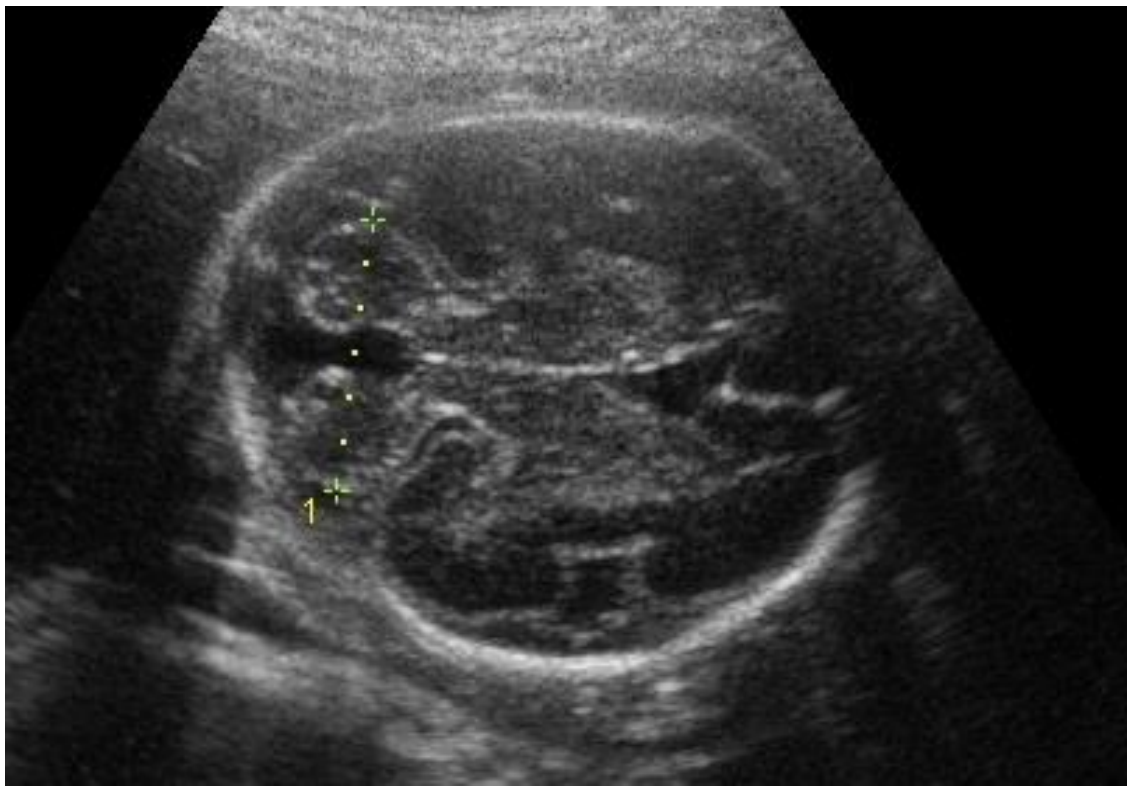
CLINICAL OBSTETRICS AND GYNECOLOGY
Volume 55, Number 1, 249–265

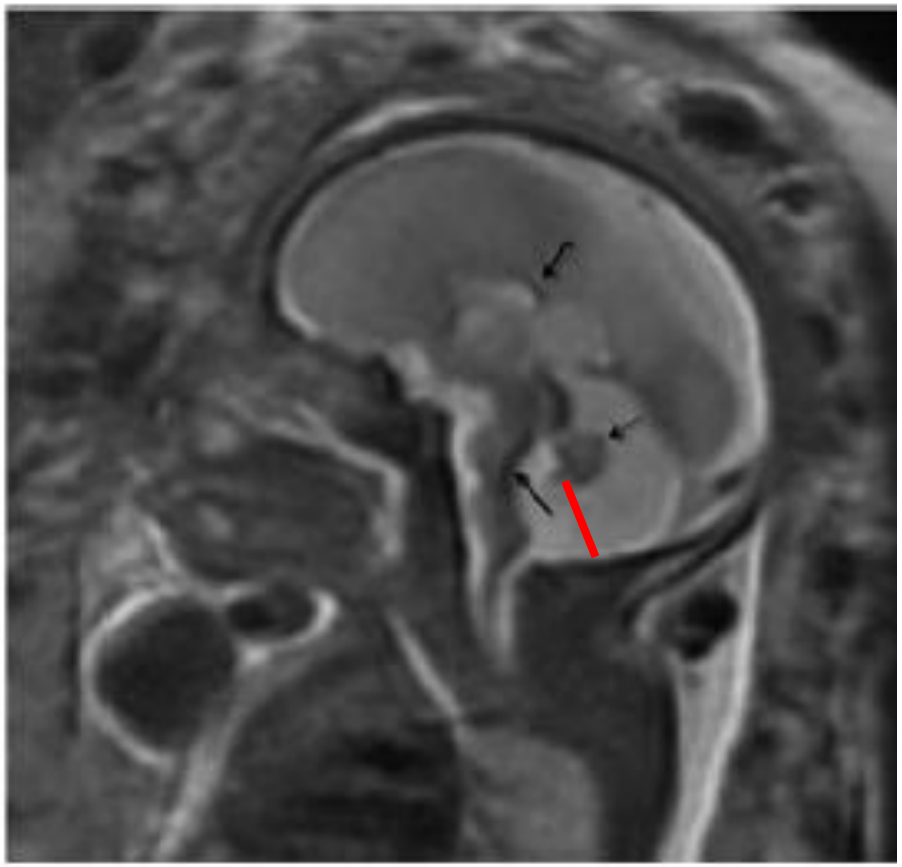
Fetal CNS Scanning—Less of a Headache Than You Think

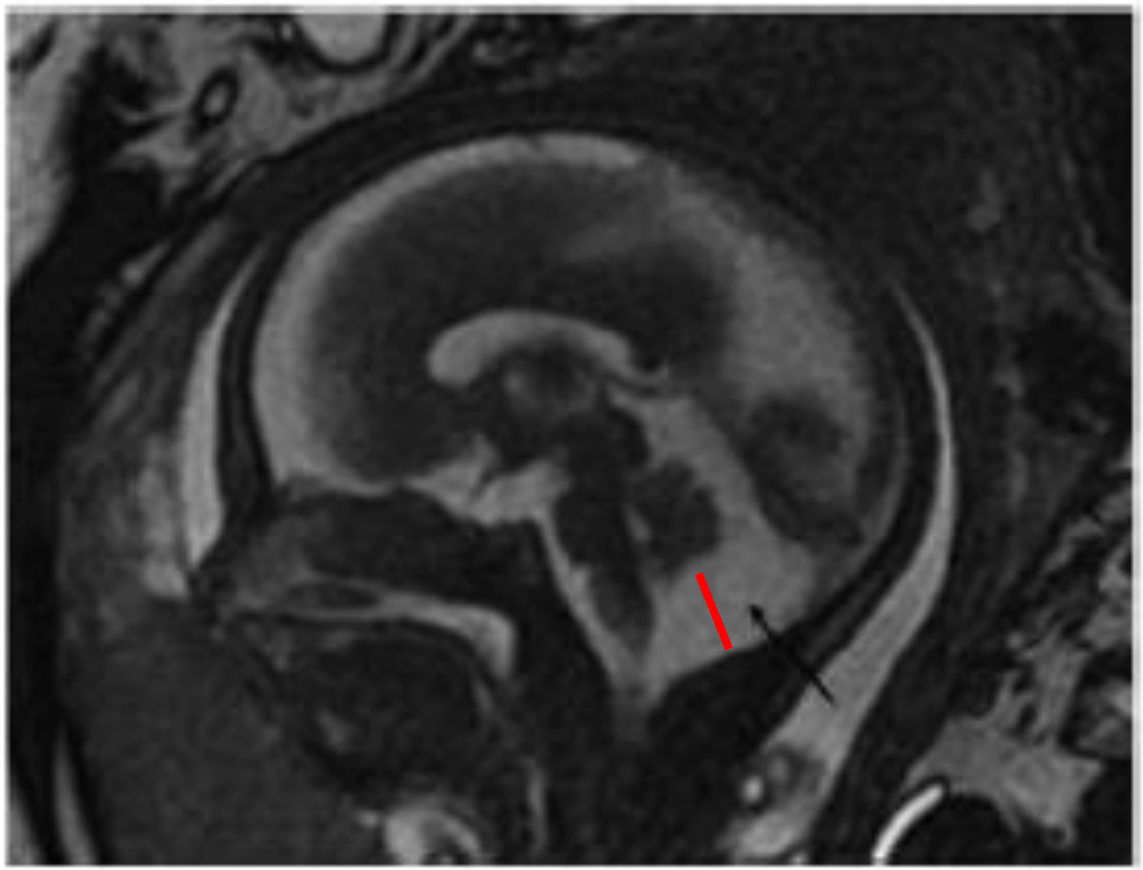
ANA MONTEAGUDO, MD and
ILAN E. TIMOR-TRITSCH, MD



Posterior fossa anomalies: Enlarged CM / Abnormal vermis / Biometry







Abnormal vermis

Normal vermis

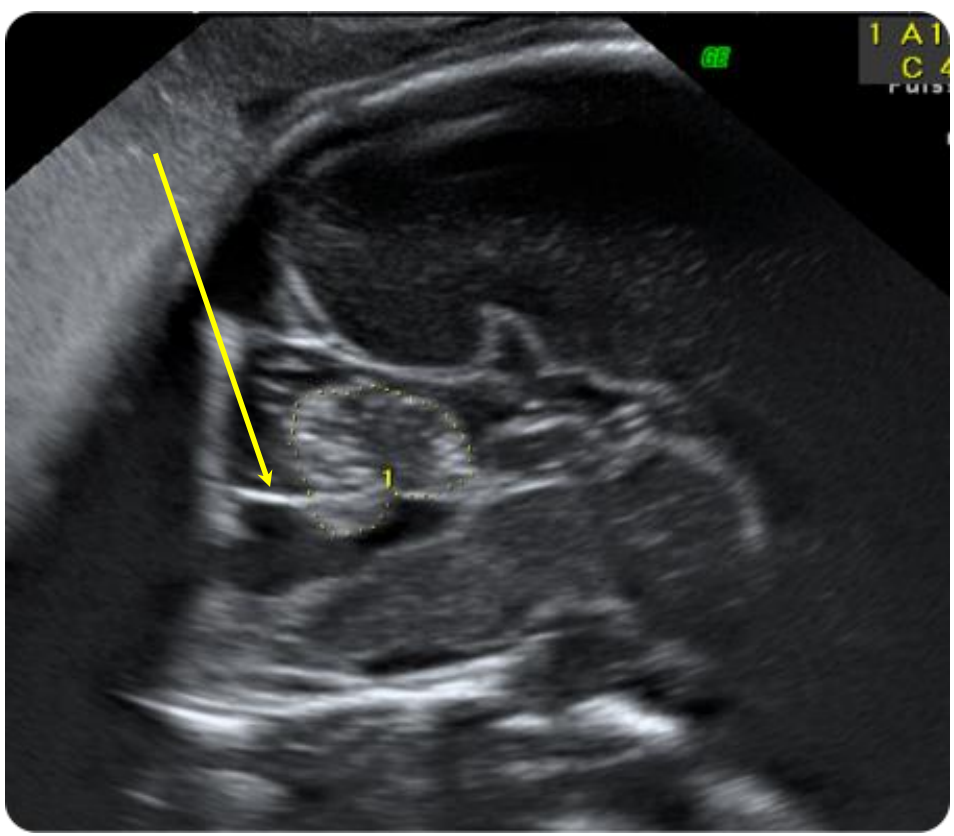
Posterior fossa anomalies: Enlarged CM -> Different situations

Posterior fossa anomalies diagnosed with fetal MRI: Associated anomalies and neurodevelopmental outcomes

Kyla J. Patek[1], Beth M. Kline-Fath[2,3], Robert J. Hopkin[1,2], Valentina V. Pilipenko[1], Timothy M. Crombleholme[2] and Christine G. Spaeth[1,2]*

Prenatal Diagnosis 2012, 32, 75–82

Posterior fossa anomalies: Enlarged CM / Abnormal vermis

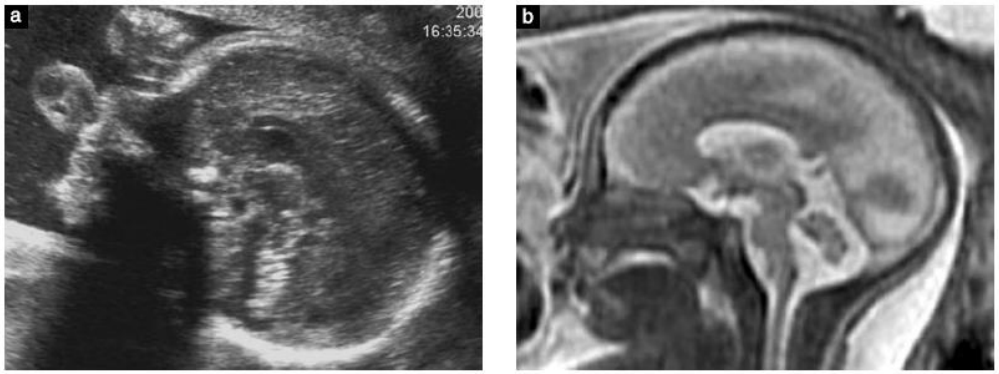


Ultrasound Obstet Gynecol 2006; **27**: 477–481
Published online in Wiley InterScience (www.interscience.wiley.com). **DOI:** 10.1002/uog.2777

Opinion

Guibaud and des Portes

Plea for an anatomical approach to abnormalities of the posterior fossa in prenatal diagnosis



ly–Walker malformation in a patient referred for an 'increased fluid-filled space' in the posterior fossa. (a) Axial ultrasound stational weeks showing a communication between the fourth ventricle and the cisterna magna suggestive of vermian agenesis. gittal ultrasound image showing enlargement of the posterior fossa with ascent of the cerebellar tentorium associated with n agenesis and cystic dilatation of the fourth ventricle. (c) Fetal magnetic resonance imaging confirmed the sonographic data.

Figure 6 Partial vermian agenesis in a patient referred for an 'increased fluid-filled space' and 'abnormal cerebellar anatomy' associated with severe cardiopathy. Median sagittal ultrasound (a) and magnetic resonance (b) images at 25 gestational weeks, showing partial vermian agenesis with a wide communication between the fourth ventricle and the cisterna magna through the defective part of the vermis, with no enlargement of the posterior fossa. Note the normal bulge of the pons.

- Abnormal PF:
  - CM (increased fluid-filled space)
  - Torcular
  - Vermis
  - Biometry

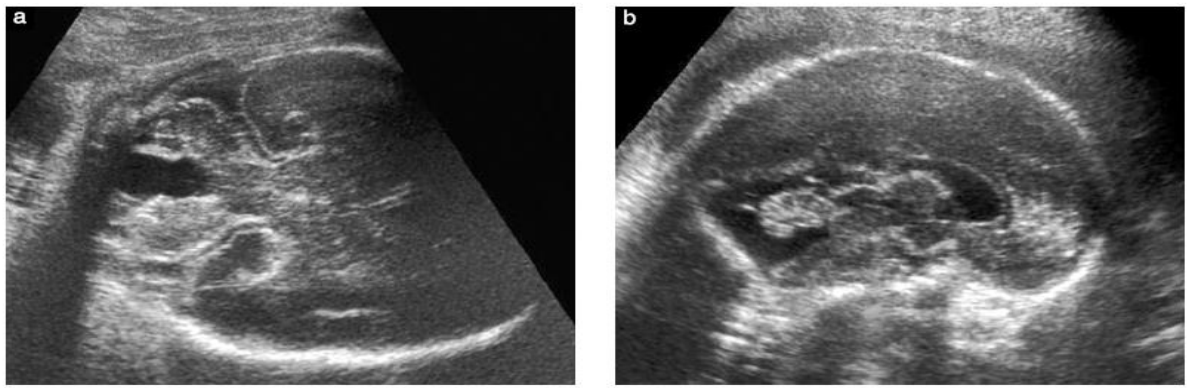


Figure 3 Rotation of a normal vermis in a patient referred for an 'increased fluid-filled space' in the posterior fossa and suspicion of 'abnormal cerebellar anatomy'. (a) Axial oblique ultrasound image at 26 gestational weeks, angled steeply towards the coronal plane, which led to an erroneous diagnosis of vermian agenesis. (b) Median sagittal ultrasound image showing simple rotation of a complete vermis leading to a posteroinferior opening of the fourth ventricle with no enlargement of the posterior fossa.

Ultrasound Obstet Gynecol 2006; 27: 477–481
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Opinion

Guibaud and des Portes

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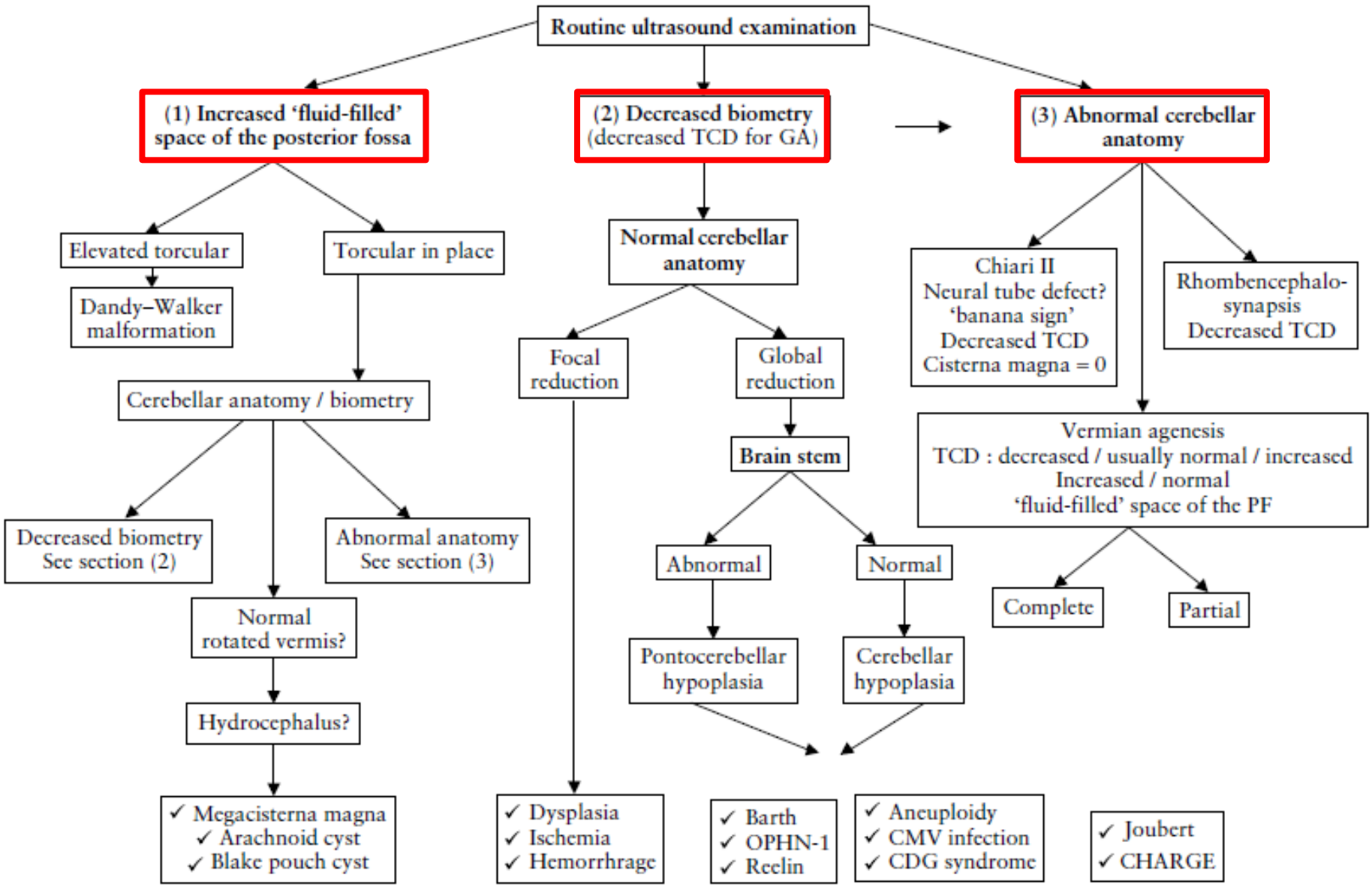

Ultrasound Obstet Gynecol 2012; 39: 625–631
Published online 14 May 2012 in Wiley Online Library (wileyonlinelibrary.com). **DOI:** 10.1002/uog.11071

Prenatal diagnosis and outcome of fetal posterior fossa fluid collections

G. GANDOLFI COLLEONI*, E. CONTRO*, A. CARLETTI*, T. GHI*, G. CAMPOBASSO†, G. REMBOUSKOS†, G. VOLPE‡, G. PILU* and P. VOLPE†

**Department of Obstetrics and Gynecology, University of Bologna, Bologna, Italy; †Fetal Medicine Unit, Di Venere and Sarcone Hospitals, ASL Bari, Bari, Italy; ‡Department of Obstetrics and Gynecology, University of Bari, Bari, Italy*

Findings	*Diagnosis*
Upward rotation of an intact vermis with normal torcular	Blake's pouch cyst
Cisterna magna depth > 10 mm with intact and normally positioned cerebellum	Megacisterna magna
Upward rotation of the vermis (normal or hypoplastic) with elevated torcular	Dandy–Walker malformation
Hypoplastic vermis with normal torcular	Vermian hypoplasia
Large cisterna magna with small cerebellum	Cerebellar hypoplasia
Cyst with a mass effect resulting in distortion of the cerebellum	Posterior fossa arachnoid cyst

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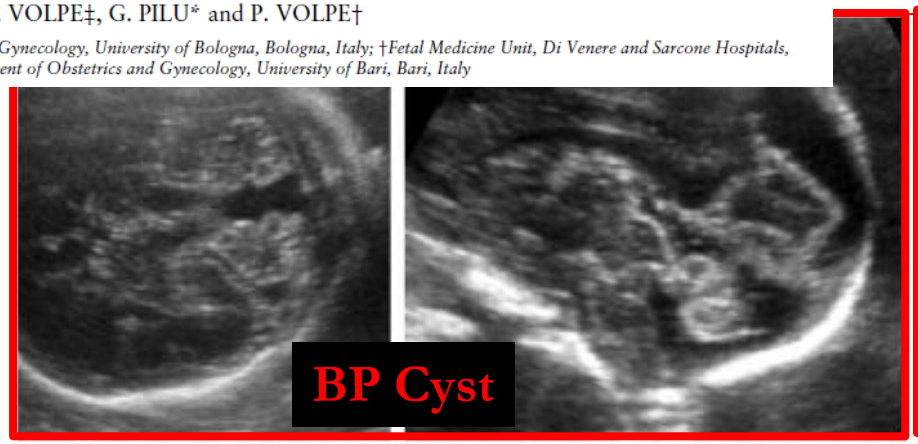
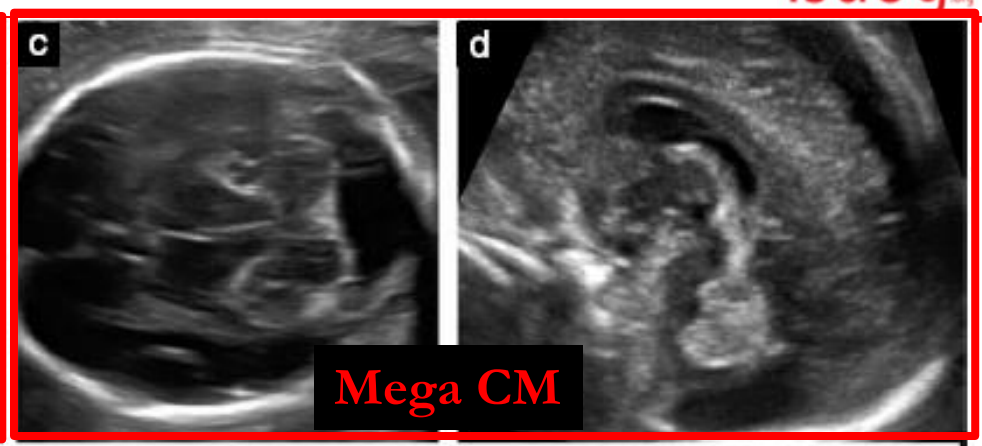
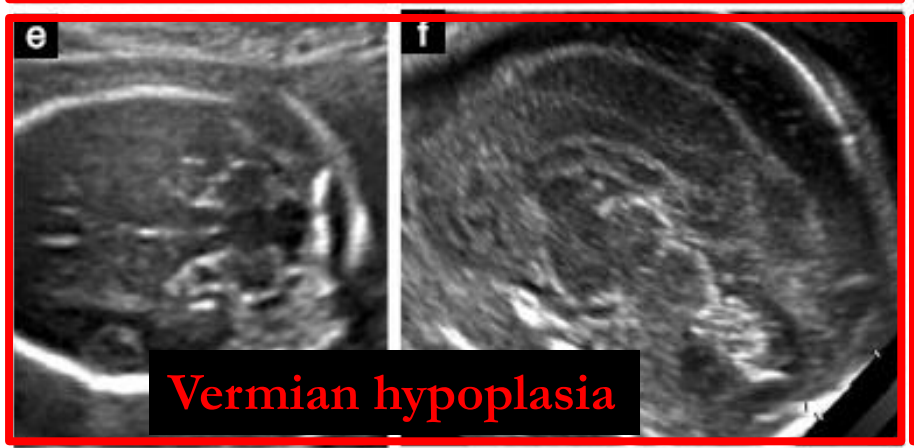
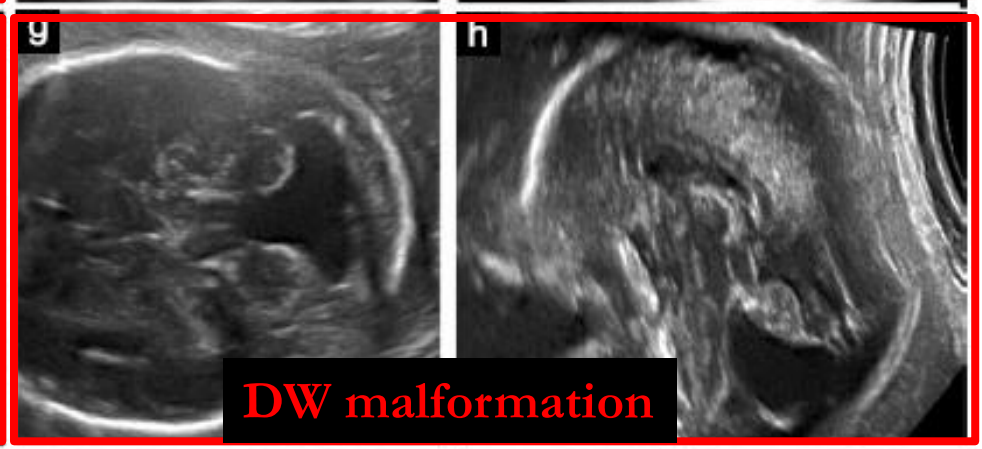
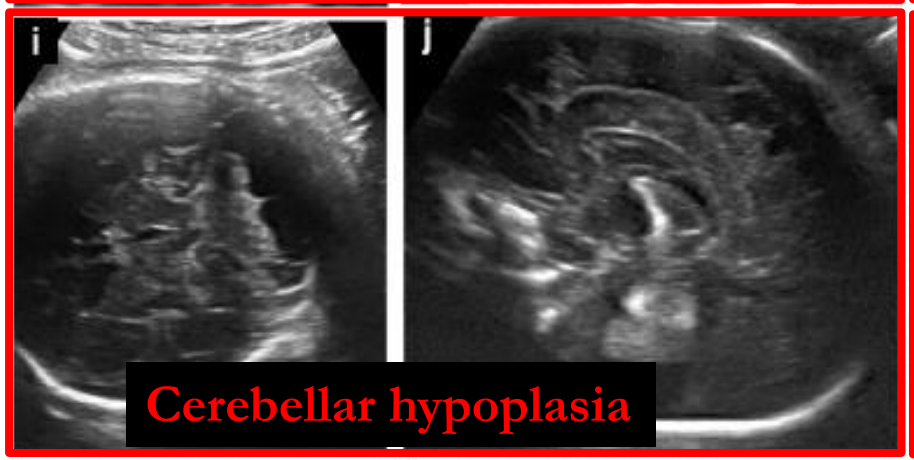
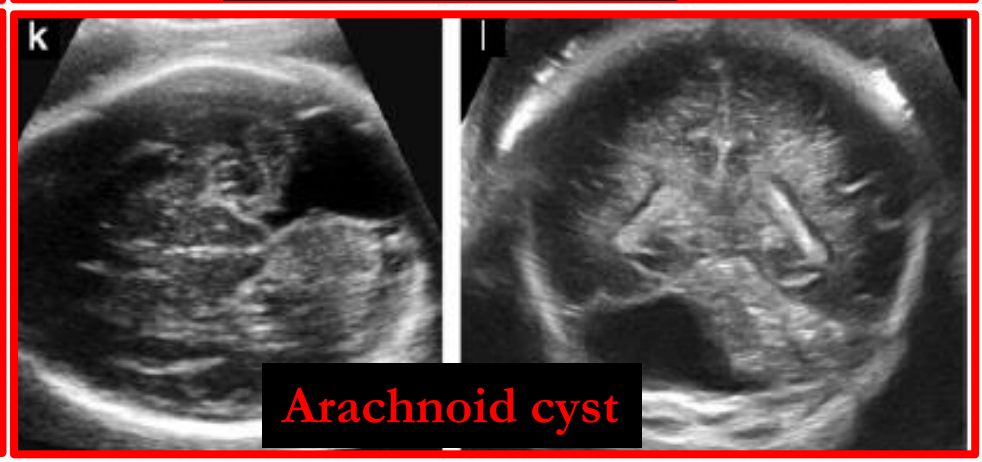




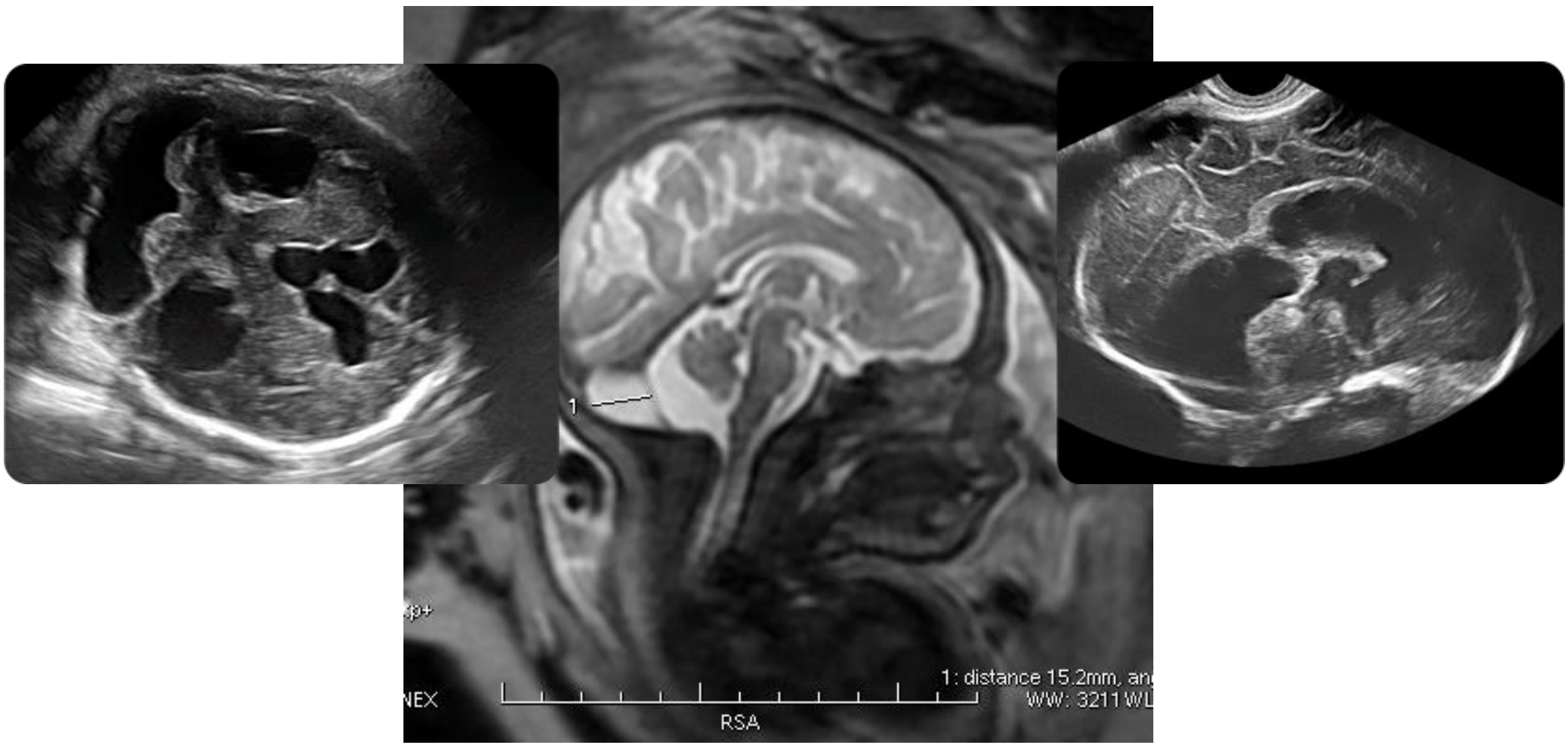








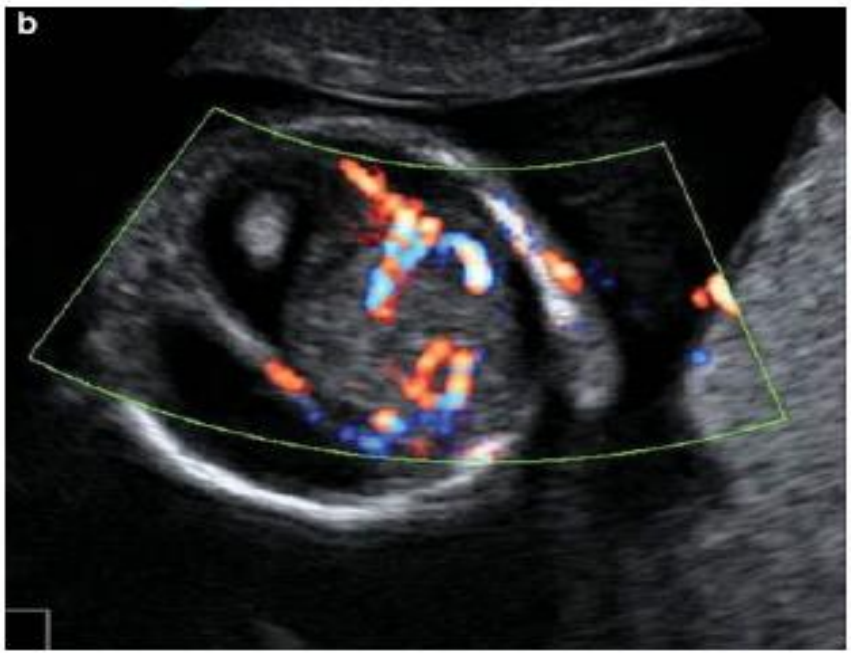
Arachnoid cyst



Micropolygiria

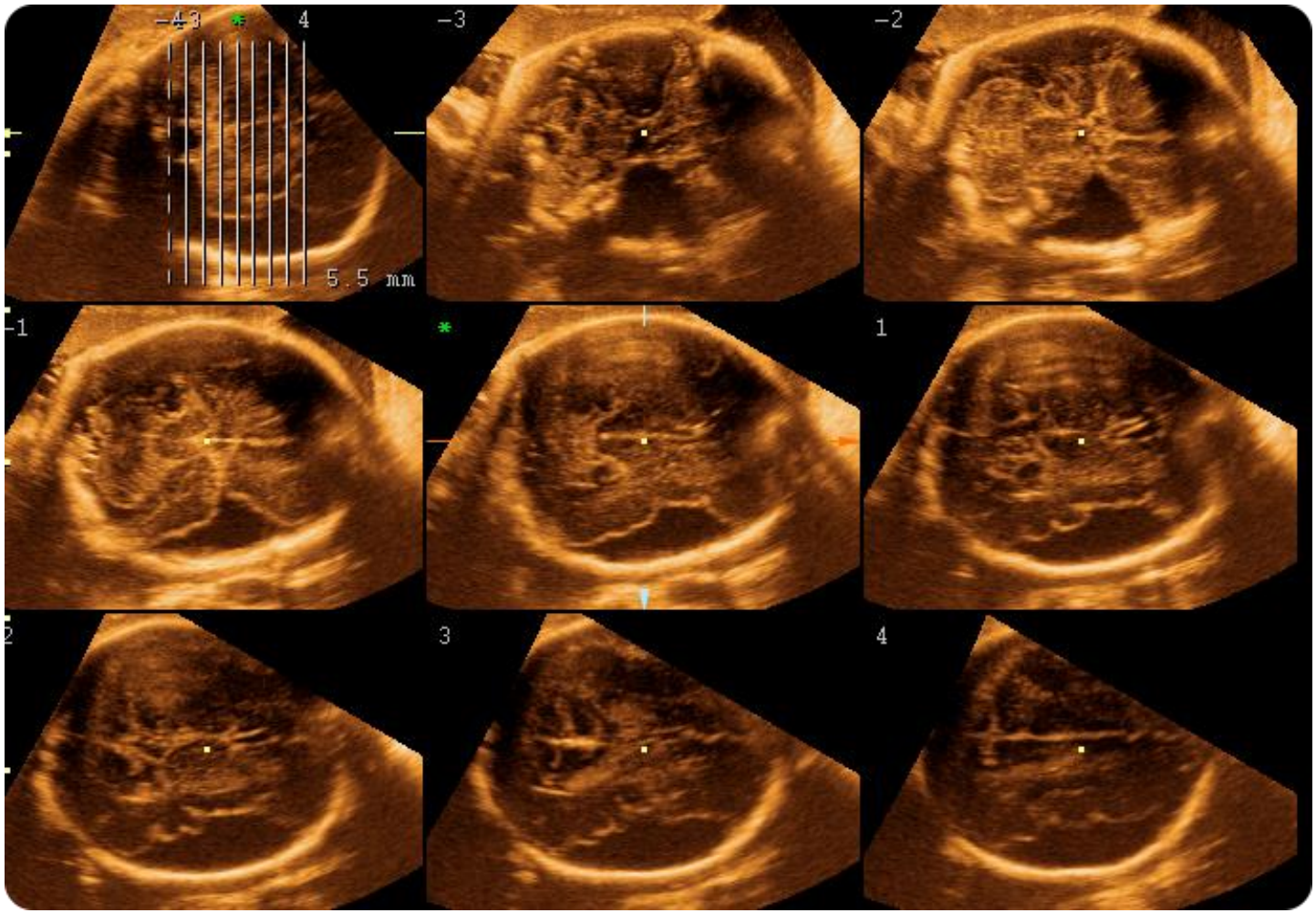
29 sa

Brain tumors



Teratomas

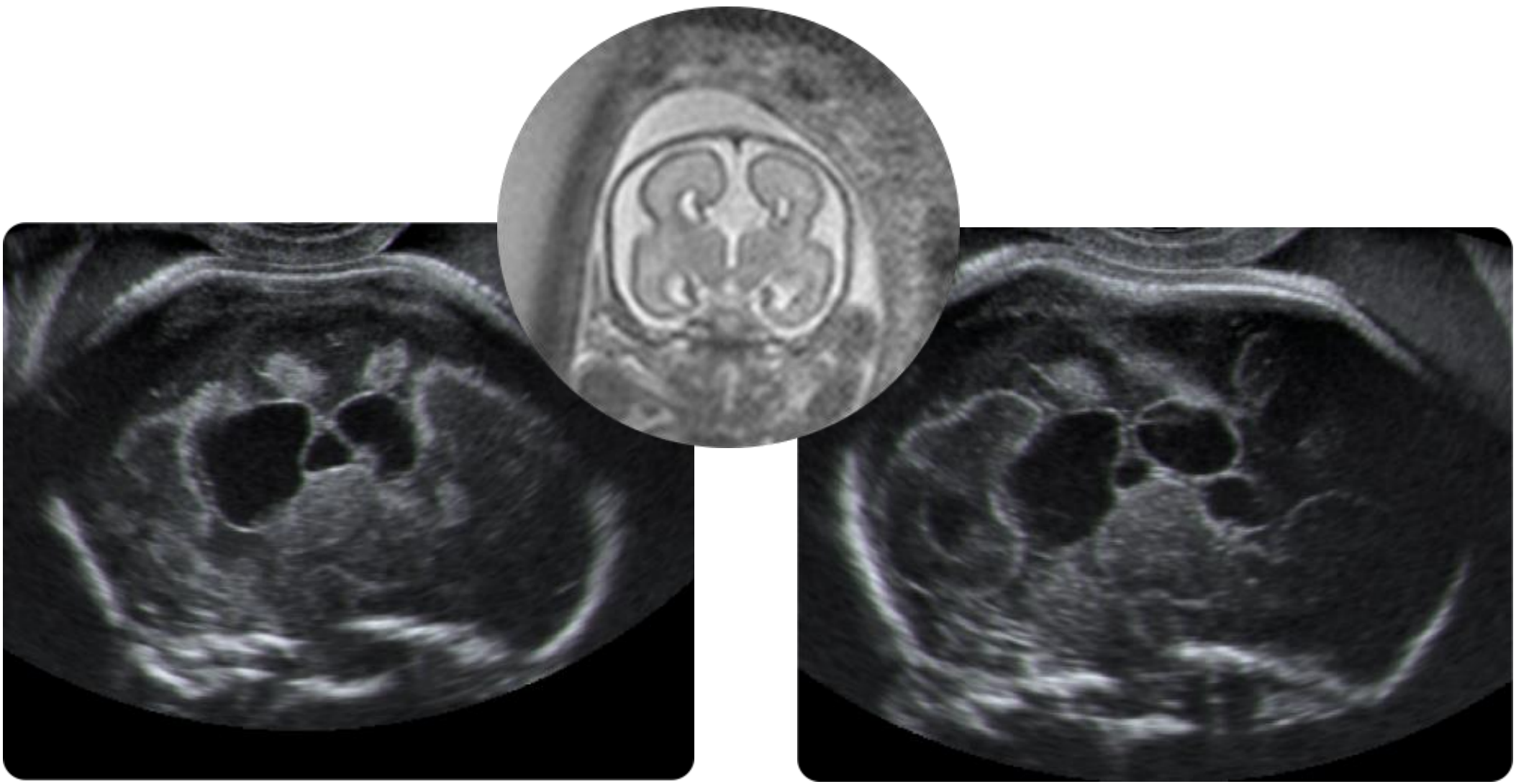
Tubers
(Bourneville)



Arachnoid cysts:

- No Doppler signal
- Associated anomalies?

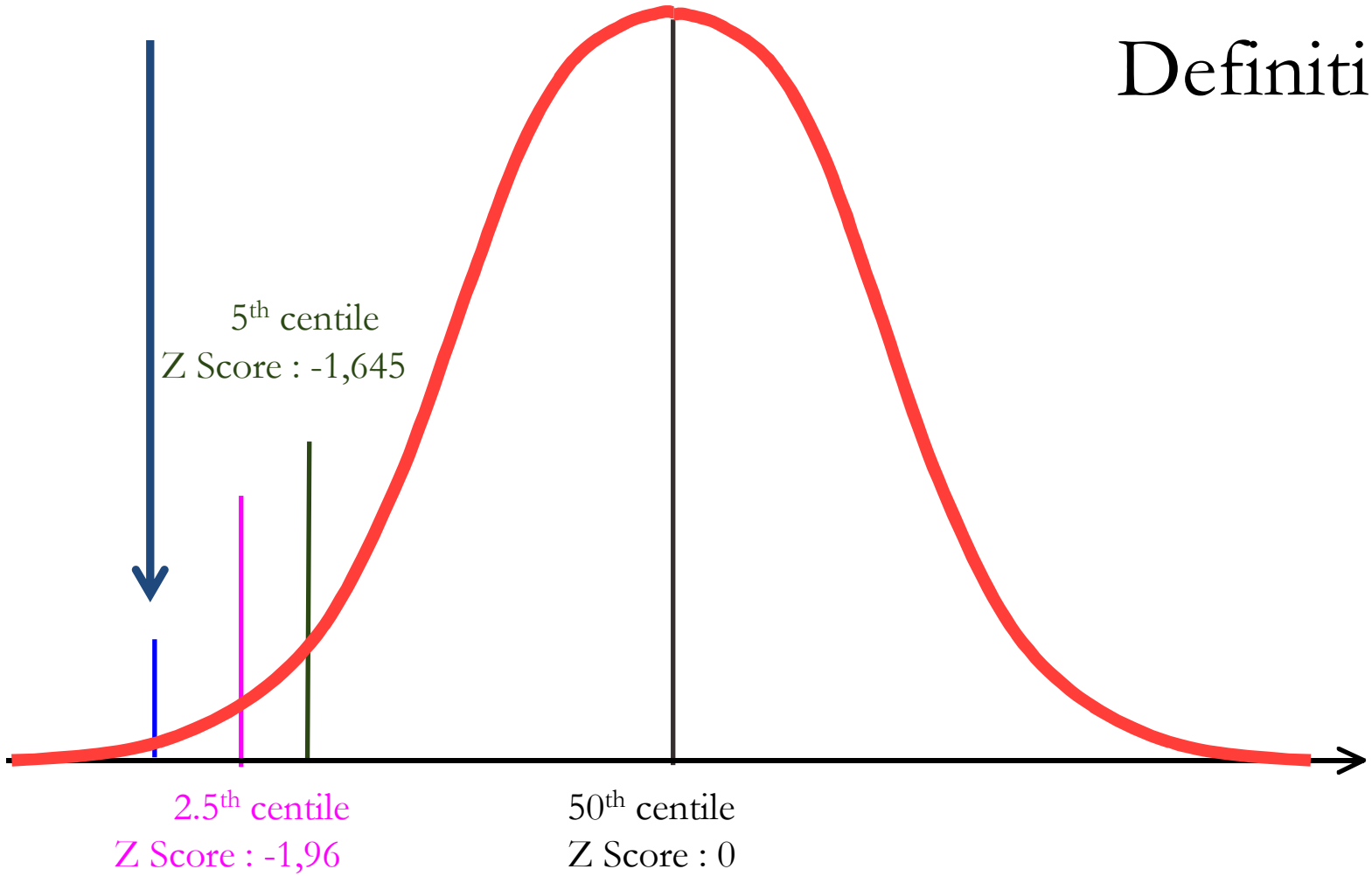
Arachnoid cyst + CC agenesis



Abnormal biometry:

- Know exact GA
- Appropriate measurement
- Fetal growth
- HC / AC
- Infection ? Zika ++??
- Aneuploidy , 4p-, 5p-
- Previous familial history

Definition



Microcephaly : -3 SD , Z Score : - 3

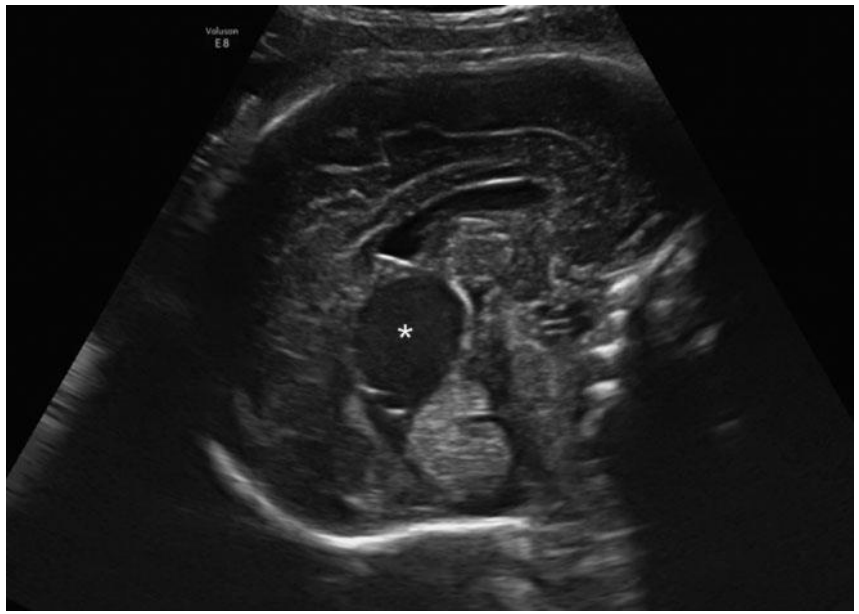
UOG15896

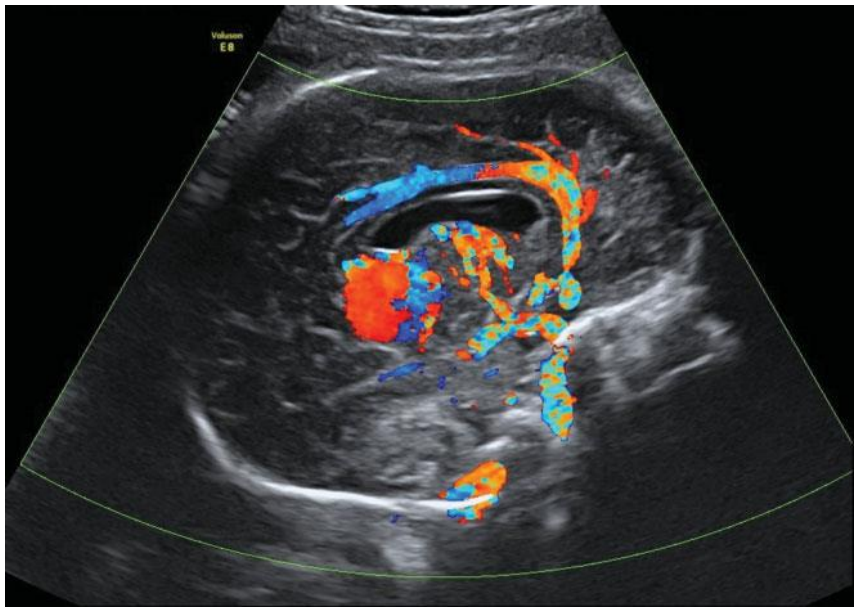
Ultrasound Obstet Gynecol 2016; 0: 000–000
Published online in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/uog.15896

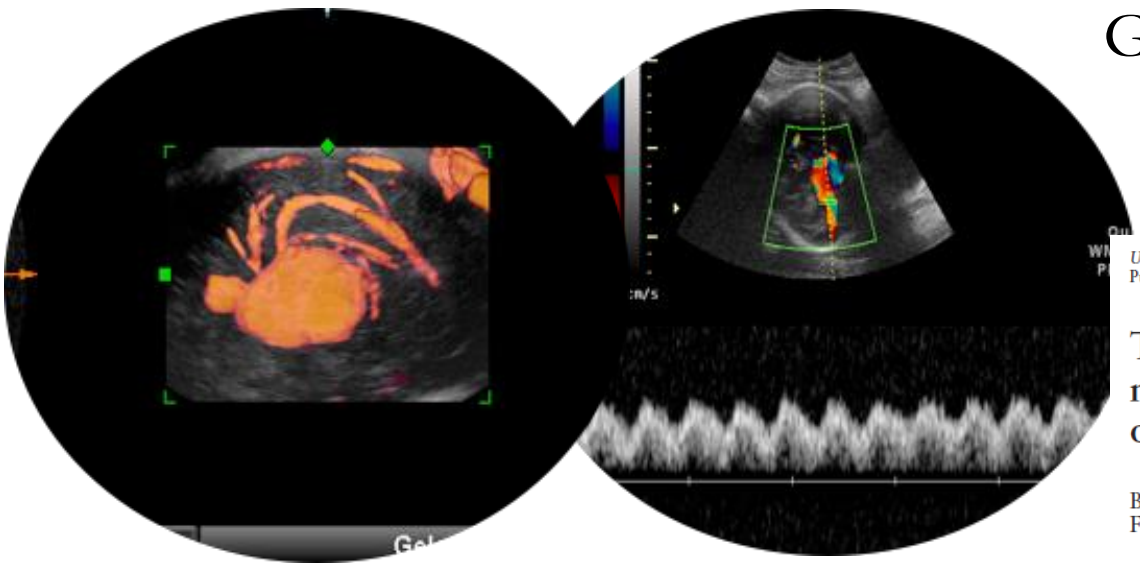
isuog.org

INTERIM GUIDANCE

ISUOG Interim Guidance on ultrasound for Zika virus infection in pregnancy: information for healthcare professionals







Gallen vein aneurysm:

- Associated CNS anomalies ?
- Associated heart dysfunction ?

UOG11188

Ultrasound Obstet Gynecol 2012; 0: 000–000
Published online in Wiley Online Library (wileyonlinelibrary.com). **DOI:** 10.1002/uog.11188

The hidden mortality of vein of Galen aneurysmal malformation: retrospective study and review of the literature

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CLINICAL OBSTETRICS AND GYNECOLOGY
Volume 55, Number 1, 249–265

Fetal CNS Scanning—Less of a Headache Than You Think

ANA MONTEAGUDO, MD and
ILAN E. TIMOR-TRITSCH, MD

- The neuroscan is typically performed by experienced sonographers and sonologist usually at referral centers.
- The fetal neuroscan by definition is a multiplanar study.
- Although, in many situations it is tempting to order an MRI as a firstline diagnostic test, in experience hands an ultrasound evaluation, and definitely a detailed fetal neuroscan, may answer many if not all the questions. A fetal brain MRI is helpful in certain situations complementing the ultrasound examination, and should be performed only after a fetal neuroscan is done by experienced sonologists.