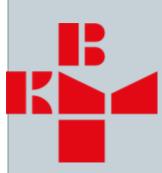
Prenatal Diagnosis and Counseling on Myelomeningocele in Croatia



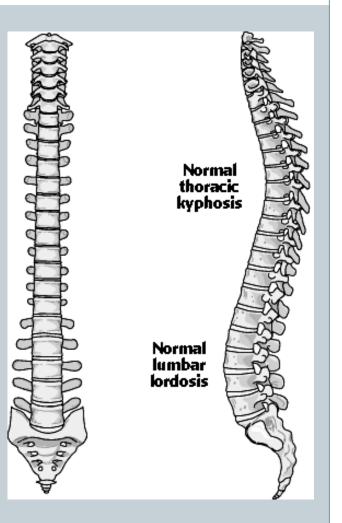
RATKO MATIJEVIC UNIVERSITY OF ZAGREB, SCHOOL OF MEDICINE MERKUR HOSPITAL ZAGREB, CROATIA



Normal spine

Visualize (and document):US and MRI

- Cervical, thoracic, abdominal, lumbar and sacral part
- Transverse and longitudinal view
- Triangular shape of osification centres (closed triangle)



MRI

 increasingly used in clinical practice, partly because of the increasing interest in fetal surgery and fetal medicine

Ultra-fast MRI

Glenn OA and Coakley FV. MRI of the fetal central nervous system and body. Clin Perinatl 2009;36:273-300



Ultrasound examination (level 1) 018-22 weeks • 12-14 weeks

Longitudinal









Spina bifida – type of myelomeningocele

Neural tube defect

- o Forms 5 6 weeks
- o Lumbar and sacrolumbar the most frequent
- Incidence 0.5-2:1000 (Croatia 0.5/1000 livebirth)
- o Related to chromosomal anomalies

Prognosis dependant on extent of the lesion

Possible total paralysis below the lesion

Related to:

- o Hidrocephalus
- o Congenitalnital defecs
- Meckel's syndrom (polidactily, multicystic kidneys autosomal recessive)
- o Amnotic band sindrome (not genetic)

Classification

Closed

Covered by skin Normal AFP





Open

Not covered by skin, drainage of the cerebrospinal liquor
 Reject AER

- o Raised AFP
- Rachishisis: complete open spine with herniation and/or destruction of neural spine





Cystic

• Meningocoele or meningomyelocoele (myelomeningocoele)



Ocult – not type of myelomeningocoele

Part of the vertebrae is not closed but without open defect
No clinical significance and without raised AFP



Dijagnosis

• US

- Transversal plane the best for diagnosis but sagital better to assess the extent of the lesion
- Protrusion of the sac (meninges) with spinal cord (or not)
- Indirect signs (banana and/or lemon) – obliterated cisterna magna



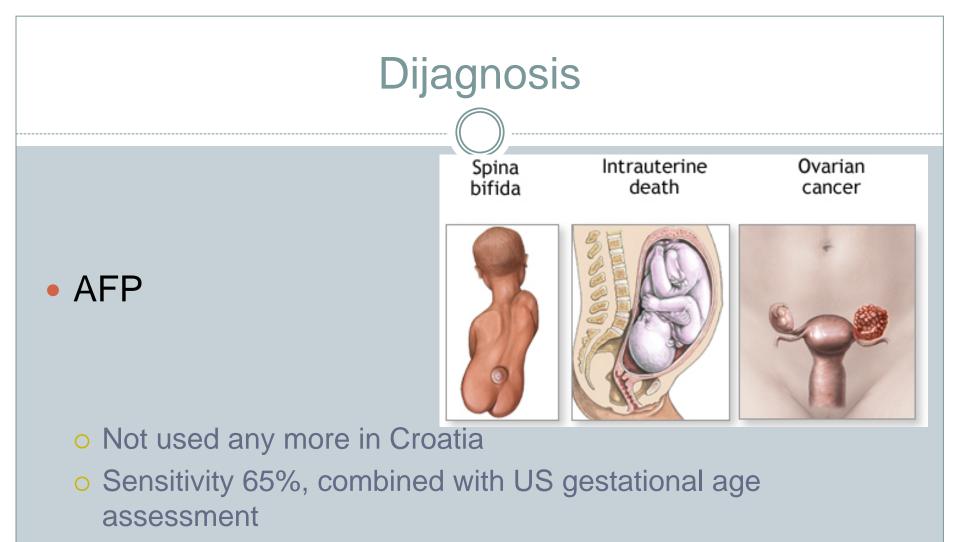
Diagnosis

• MRI

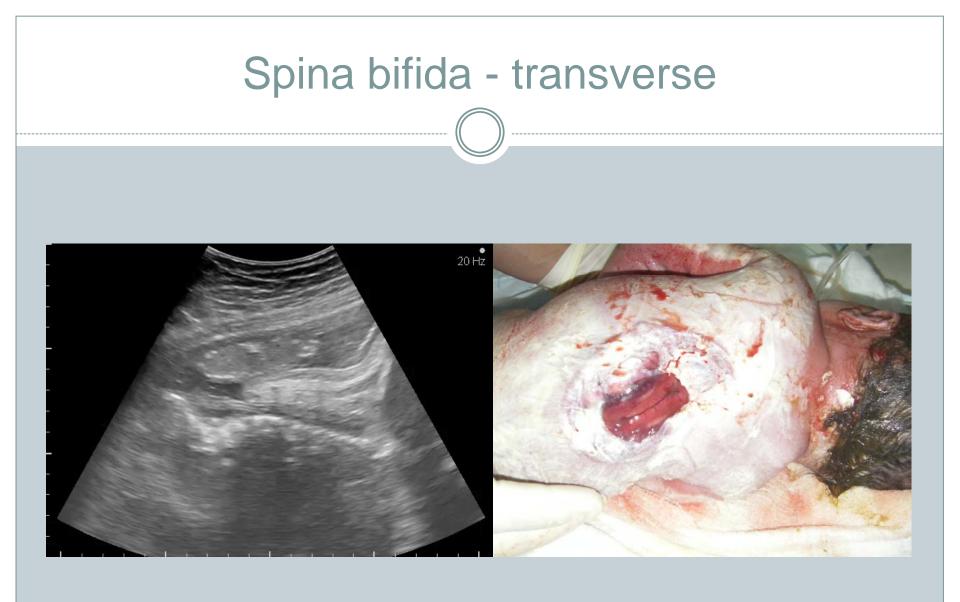
o Since 2000

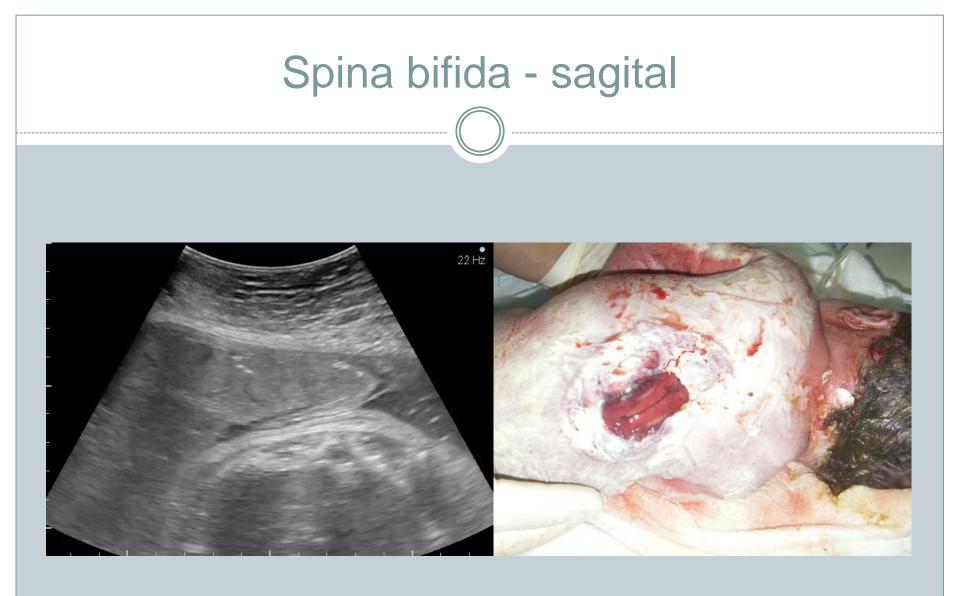
- Rarely used in Croatia
- Helpful..., problems in interperetation of immages
 Compared to US





- US sensitivity up to 100% (P< .001 compared with screening) but later in pregancy
 - × Dashe J i sur. AJOG 2006;195:1623





Associated anomalies

- Hidrocephalus, encephalocolela-e, Arnold Chiari
- Meningomielocoele (more frequent that meningocoele)
- Any level on fetal spine
- Abnormal osification of posterior centres

Ultrasound diagnosis - Croatia

- Incidence 0.5/1000 (livebirth) lower rate
- Diagnostic accuracy 50-100% (depending on centre)
- TOP if before 22/40
- Folic acid uptake different

Referal centre

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• Folic?

o Vit B

Reduces the risk up to 70% - BEFORE PREGNANCY

Natural sources

- Vegetables, fruit, juices
- o Insufficient

• How much?

- o 400 mcg (0.4 mg)
- High risk (history) 4000 mcg (4.0 mg) three months

Ireland example

- 225 998 births, 236 NTD, 1.04/1 000
- 0.92/1 000 in 2009 to 1.17/1 000 in 2011
 - o 45% (n = 106) had an encephaly
 - o 49% (n = 115) had spina bifida
 - o 6% (n = 15) had an encephalocoele
- Peri-conceptional folic acid supplement intake was 13.7% among the 52.5% (n = 124) of cases whose folic acid supplement intake was known.
- ?mandatory folic acid food fortification

McDonnel R et al. Neural tube dfects in the Republic of Ireland 2009-2011.J Public Health 2014

Something new?

european surveillance of congenital anomalies

 Neural tube defects (NTDs) have not significantly decreased in prevalence over the last 10 years, showing that efforts to prevent NTD with periconceptional folic acid supplementation have been largely unsuccessful.

Newsletter, 22nd december 2014

Antiepileptics

- o Valporate, filate use, increasing the dose
- Jentink et al. Does folic acid use decrease the risk for spina bifida after in utero exposure to valproic acid? Pharmacoepidemiolog Drug Saf 2010;19:803
 - o OR with folic acid
 - not exponated0.5 [95%CI: 0.3-0.7]eksponated1.0 [95%CI: 0.1-7.6].
- Conclusion not possible
- Folic acid may not reduce the risk of spina bifida realted to valoprate use, but reduces the risk in general

Inconclusive regarding the dose

Croatia: "Why not?" principle, 10 times the normal dose



www.nih.gov 2014 Adzik NS. Sem Pediat Sur, 2013



LABOR AND DELIVERY

CAESAREAN SECTION IS THE COMMONEST WAY, mandatory if breech, possible if there is no makrocephaly
Wilson RD et al J Obstett Gynaecol Can 2014;36:927
Is Cesarean helpful regarding neonatal outcome – remains open question
Hill AE and Beattie F. Eur J Paediatr Surg 1994;4:32
No benefit of Cesarean in there is no other indication
McLone DG and Bowman RM. Up-to-Date 2014

Croatia: Common sense... (menaing Caesarean)



Post natal manegement Croatia

- Postdelivery care O & G
- Postnatal surgery 5 centres
- On average 20 year (+/-3) HALFED IN RECENT YEARS
- Postnatal transfer
 - Graz, Austria

(rare)



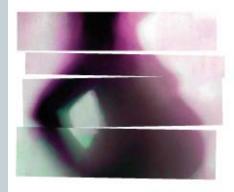
Colaboration







Thank you



6th Congress of the South-East European Society of Perinatal Medicine



Zagreb / CROATIA 4-6. 12. 2015.

The South East European Society of Perinatal Medicine