Additional observations

- Ultrasound observations
- Pathological findings
- Animal studies


TREATMENT OPTIONS

Termination of pregnancy (25-90%)

Postnatal care
- Surgical closure in the 1st 48 hours
- Shunt placement
- Prevention of infection

Materno-Fetal surgery

Endoscopic surgery
THE IN-UTERO REPAIR EXPERIENCE

• **1994-1997**: started with endoscopic repair, poor results, rapidly abandoned.

• **1997-2003**: open repair, with promising results.

• Uptill now about 400 intra-uterine repair for MMC have been performed.
Current Data of Intrauterine MMC Repair

- Hindbrain Herniation (Arnold-Chiari malformation)
- Hydrocephalus and the Need for Shunt
- Sensorimotor Function of the Lower Limbs
- Bowel and bladder continence
- Symptomatic Tethered Cord
- Maternal and Fetal Risks
Hindbrain Herniation (HH) (Arnold-Chiari malformation)

- Most common cause of death in children with MMC
- Reversal of the HH
- No long-term data have proved that observed reduction of HH leads to a reduction of symptoms and a decreased mortality.


Hydrocephalus and the need for shunt

- Lower shunt rate#
- ?? BIAS*


Sensorimotor Function of the Lower Limbs

- Conflicting results
- No concrete evidence on benefit.


Neither of the reports showed improvement in bladder function when patients were compared to conventionally treated controls.


SYMPTOMATIC TETHERED CORD

- No improvement

MATERNO-FETAL RISKS

Maternal
- Pulmonary edema 5%
- Uterine dehiscence 2%
- Uterine rupture/bowel obstruction (0.5%)
- No effect on future fertility
- No maternal mortality

Fetal
- Preterm labour (almost always)
- Delivery <30 weeks in 10%
- PTL-related Morbidity 12%
- PTL-related Mortality 3%
- Oligohydramnios

Current Data of Intrauterine MMC Repair

- UNPROVEN BENEFIT
- No randomized trials
- Comparison with historic controls