

Is it time to compare long-term outcomes among the neurosurgical techniques used for prenatal spina bifida repair?

Denise A. Lapa¹, Ana Paola A.B. Sevilla¹, Lucas Trigo², Gregorio L. Acacio¹, Rodrigo T. Goncalves¹, Giulia Catissi¹, Reynaldo Brandt¹

1. Hospital Israelita Albert Einstein, Sao Paulo, Brazil 2. Fetal Medicine Research Center, BCNatal - Hospital Clínic and Hospital Sant Joan de Déu, Universitat de Barcelona

Tethered cord syndrome is clinically diagnosed when a spina bifida patient loses neurological function, i.e. changes in gait, leading to inability to walk independently, worsening of bladder function, local pain, scoliosis... It occurs twice more after fetal repair, when compared to postnatal repair for unknown reasons.

Objective

To report long-term outcome of OSB fetuses submitted to prenatal repair SAFER technique with special focus on tethered cord surgery and cognitive neurodevelopment

Methods

SAFER TECHNIQUE STEPS

- 1- Placode release
- 2- Biocellulose patch over the placode
- 3 - The skin is closed over the patch*

*with or without a myofascial flap.

- 4 - If the skin is not sufficient, a skin substitute is sutured to the skin gap (no relaxing incisions)

Results

Total = 172 cases (May 2013 and May 2022)

Reversal hindbrain herniation:
Any degree reversal: 97%
(84/87**)

** Total 87 cases with MRI post surgery

N = 148 cases

24 excluded*

*2 ongoing, 3 not completed, 2 IUD, 1 TOP, 8 neonatal death, 3 shunt related and 5 lost follow-up.

30 months or older → n= 82 cases

CSF deviation: 46%

Independent ambulation: 46%

Normal cognitive
function: 91%

Surgery cord untethering (n=3***/79)
0% < 12m – MOMS 8% at 12m
4% > 30m - MOMS 8% at 30m

Months	Indication***
60	dermoid cists
51	progressive scoliosis
26	bladder worsening

CONCLUSIONS

- Compared to the MOMS, the SAFER neurosurgical technique **reduces by half the need for surgery in early cord tethering** (8% x 4%)
- **Uniformization of the repair technique** among the groups, irrespective of the approach (open surgery or fetoscopy), could yield even better outcomes