NTS Clinical Guideline

Title:	Management and Transfer of Babies with Neural Tube Defects		
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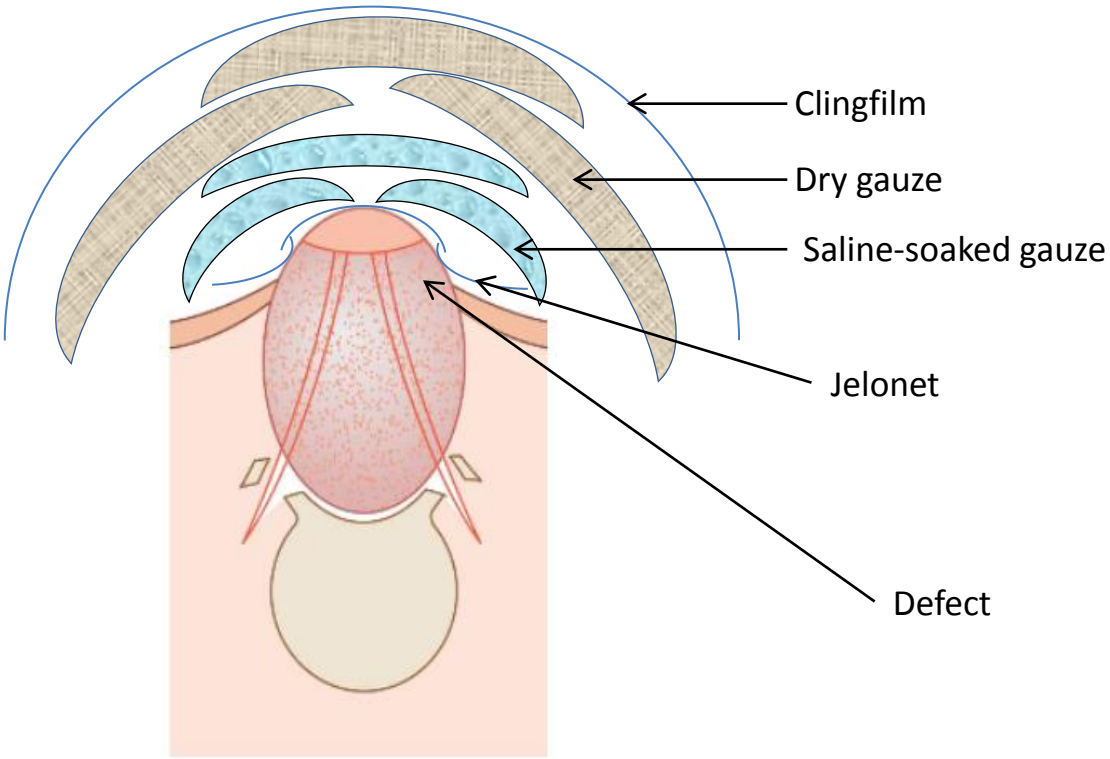
Key Points of Management

1. **Nurse in prone or side-lying position**

2. **If lesion not covered, consider <u>prompt</u> photography, if possible**

3. **Cover the lesion with sterile dressing as shown below:-**



4. **Obtain IV access, and ensure broad-spectrum antibiotic cover initiated**
5. **Maintain NBM, on IV fluids**
6. **Consider early cranial ultrasound if concerns regarding hydrocephalus**
7. **Cardio-respiratory support is not usually required**

Introduction

Neural tube defects (NTDs) are the spectrum of conditions caused by failure of closure of the neural tube during embryological development. They may also be known as *spina bifida*.

NTDs can be broadly classified into two groups: open and closed (with or without skin covering). Closed NTDs (*e.g.* spina bifida occulta, meningocele) are not acute neurosurgical emergencies, and thus we are unlikely to encounter them. Open NTDs (*e.g. myelomeningocele)* are, however, an emergency, due to risk of ascending infection and/or damage to the exposed neural tissue through trauma/drying; surgical closure is required within the first few days.

NTDs are seen on an increasingly rare basis nowadays. This is due to 1) recognition of the role that maternal folate deficiency plays in their development, and consequent encouragement of preconception folate supplementation, and 2) high rates of termination when diagnosed antenatally (via ultrasound and blood 'triple-testing').

Classification

- Normal
- Spina bifida occulta (closed lesion)
- Meningocele (closed lesion)
- Myelomeningocele (open lesion)

Implications

Infants with myelomeningoceles are risk of multiple disabilities secondary to cord damage: namely motor and sensory deficits, and neuropathic bladder and bowel. Orthopaedic deformity may also be seen. Prognosis is dependent on level on the lesion, involvement of neural tissue in the defect, ascending infection, and the presence of other structural defects.

Associated Problems

Infants with myelomeningoceles are at a very high risk of developing hydrocephalus, secondary to an Arnold-Chiari malformation. Fortunately, this is not frequently noted in the early neonatal period, and is thus unlikely to impact upon transfer.

Stabilisation and Transfer

1. Nurse in prone or lateral recumbent position: this is to reduce risk of trauma to the lesion.
2. It should be noted if lesion is intact or has ruptured; photography of the lesion should be considered prior to covering; to provide information to the neurosurgeons without unnecessary handling of lesion and dressing.
3. The lesion should be covered promptly to reduce traumatic damage and infection, and prevent drying. It is recommended that a Jelonet dressing is applied, covered by saline-soaked gauze, to maintain moistness of the lesion. This can be held in place with dry gauze and Clingfilm to prevent dislodging/movement of the dressing, causing further damage. It is recommended that saline-soaked gauze is not placed directly upon lesion, as gauze fibres may adhere to exposed tissue, causing additional damage on removal.

4. Obtain IV access, with routine and pre-surgical bloods (FBC, biochemistry, clotting, G+S, culture)
5. Cover with broad-spectrum antibiotics (local choice, to cover early-onset sepsis), to reduce risk of ascending infection through the defect.
6. Maintain on IV fluids for transfer, and until a surgical plan is decided.
7. No particular cardiovascular or respiratory instability should be seen with this condition; however if there are concerns, a cranial ultrasound should be considered prior to transfer, to investigate for potential hydrocephalus. Any decision regarding invasive respiratory support of these babies should be discussed with the consultant on-call.
8. Full neurological examination should be performed as part of the initial assessment.

References

- Neural Tube Defect. *Rennie and Roberton's Textbook of Neonatology. 5th Edition. Elsevier. p1206*
- http://emedicine.medscape.com/article/1825866-treatment