Plastic Surgery and Spina Bifida

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Forms of Spina Bifida

- Occulta
- Meningocele
- Myelomeningocele (1/800-1000)

Associated with
- Hydrocephalus (70-80%)
- Scoliosis
- Pressure sores
Role of Plastic Surgery

- Surgical closure of large complex myelomeningocele
- Management of kyphotic lesions in scoliosis
- Management of pressure sores
Myelomeningocele treatment

- Most severe form of spina bifida
- Spinal cord and neural elements are exposed through an opening in the spine
- Plastic surgeon works with neurosurgeon as team

AIM:
1. Develop watertight closure with viable skin flaps that is durable
2. Role for cosmesis
Neurosurgical closure

- Edges of neural placode mobilised, separated from surrounding dysplastic skin
- Placode folded on itself to reconstruct end of spinal cord
- Remnants of dura mobilised from lumbosacral fascia
Plastic Surgery

Closure over dural repair:

Previously muscle repair with skin grafts

NOW

Multi-layered closure has proven to be valuable

1. Myocutaneous flaps (eg. latissimus dorsi, gluteus maximus)
2. Fasciocutaneous flaps- de-epithelialised
3. Perforator flaps- venous congestion, blood loss, length operation
4. Periosteal turnover flaps
Duffy, Frederick; Weprin, Bradley; Swift, Dale
DOI: 10.1097/01.PRS.0000142741.11963.10

Keystone design perforator island flap for closure of myelomeningocele
1. Local turnover fascial flaps
2. Paraspinal muscle closure
3. Linear midline skin closure

- Facilitates exposure for secondary spinal surgery
- Minimises posterior trunk scarring

Extradural myelomeningocele reconstruction using local turnover fascial flaps and midline linear skin closure

Myelomeningocele treatment
Paraspinal muscle transposition
Direct skin closure
Rotation flap
Gluteus maximus rotation flap

Direct closure of lumbo-sacral myelomeningocele
Scoliosis and associated kyphotic lesions

- 10-15% present with congenital scoliosis
- Usually progressive
- Recurrent skin breakdown
- Kyphectomy with fusion
Pressure sores associated with spina bifida

3 year old with myelomeningocele

V-P shunt
Direct closure inverted Y

Lumbar pressure sore secondary to gibbus deformity

- Lack of sensation to pain, pressure, wetness
- Difficulty repositioning
Rotation flap repair,
Bony prominence sacrum excised
5 years old

Breakdown of flap edge

Conservative management

- Simple dressings
- VAC dressing
- Avoiding pressure
- Regular inspection of skin
- Diet and fluid intake
Role of Plastic Surgery

- From birth
- Multidisciplinary team
- Wound Care and Plastic Surgery repair techniques are evolving