Paraplegia and pregnancy

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Case presentation

- SP, 37 year old
- G2P0, previous TOP
- Previously fit and well
- 7th March 2015: thrown 100 feet from motorbike. Closed fracture multiple ribs and C6 lamina pedicle. Closed fracture T6, cord transection. Surgical emphysema, pneumothorax, traumatic haemothorax. Fusion of T4-7, fractured scapula.
- Posterior spinal fusion 12th March 2015
- Right shoulder bursitis – treated with steroid injections, physio with taping for stabilisation of shoulder

Social & Mobility

- Lives with partner
- Carers to aid dressing, self washes
- Jay 2 cushion and Kuschal K4 manual chair. Self hoists
- Knee blocks for standing frame
- Wakes to turn twice a night

Bladder and bowel

- Intermittent self catheterisation
- Video urodynamics 2015 – bladder overactivity
- 2 glycerine suppositories daily, followed by manual evacuation. Regular Lactulose and Senna
- Occasional abdominal spasms secondary to bladder/bowel management

Autonomic Dysreflexia

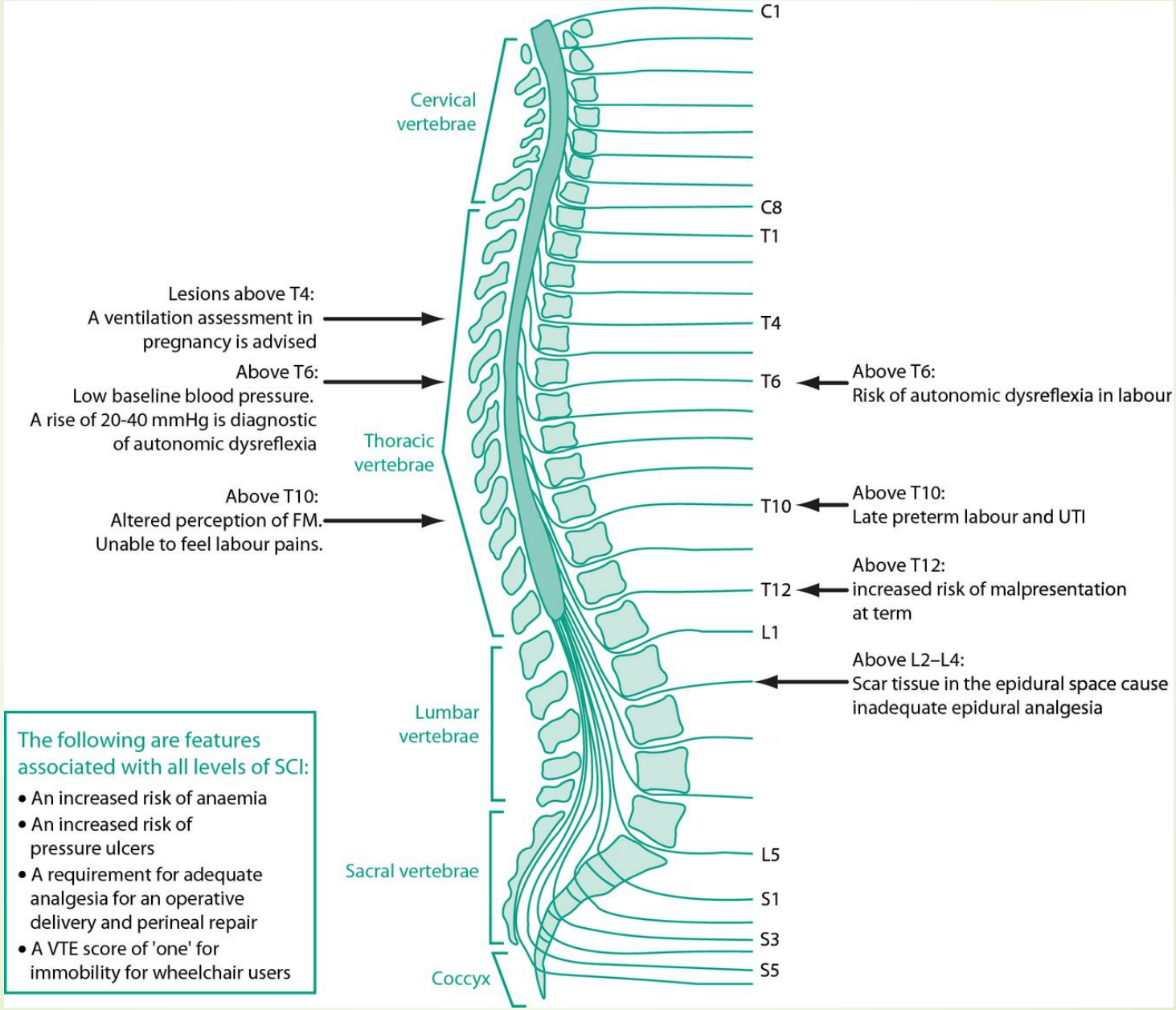
- At risk due to level of lesion
- One episode whilst inpatient at Salisbury hospital
- Further episode upon bladder distension during urological investigations – hypertension noted and procedure abandoned. No further treatment required
- Has supply of Nifedipine for hypertensive episodes

Pregnancy

- Spontaneous conception
- Recurrent UTIs with highly resistant ESBL – multiple antibiotic courses
- Continued with ISC and manual evacuation of bowels
- Anomaly scan – cardiac abnormality in baby – referred to St George's – no chromosomal abnormality detected on amniocentesis
- RTA at 28/40 gestation due to sudden blurring of vision – drove into fence. No injuries sustained
- Opted for ELCS due to risk of autonomic dysreflexia
- Elective admission from 37/40 to monitor for signs of labour and AD

Manual handling

- Wheelchair transfer
- Transfer board and tubular slide sheet on top of transfer board
- Trust hoist sling if hoisting required
- Loop spreader to be used if sling needed
- Hovermatt to be in position before CS for any lateral transfer
- Shower chair for personal hygiene use (patient's own)


C1
Cervical vertebrae
C8
T1
Lesions above T4:
A ventilation assessment in pregnancy is advised
T4
Above T6:
Low baseline blood pressure.
A rise of 20-40 mmHg is diagnostic of autonomic dysreflexia
T6
Above T6:
Risk of autonomic dysreflexia in labour
Thoracic vertebrae
Above T10:
Altered perception of FM.
Unable to feel labour pains.
T10
Above T10:
Late preterm labour and UTI
Above T12:
increased risk of malpresentation at term
T12
L1
Above L2–L4:
Scar tissue in the epidural space cause inadequate epidural analgesia
Lumbar vertebrae
Sacral vertebrae
L5
S1
S3
S5
Coccyx
The following are features associated with all levels of SCI:
• An increased risk of anaemia
• An increased risk of pressure ulcers
• A requirement for adequate analgesia for an operative delivery and perineal repair
• A VTE score of 'one' for immobility for wheelchair users

Paraplegia and pregnancy

- 40,000 cases of spinal cord injuries in the UK, 26% women, majority young
- Pregnancy limits mobility further in 4.5% of patients – continue skin, bladder, bowel care, and physiotherapy throughout
- Preconceptual evaluation – pulmonary and renal function, chronic medical condition, fertility not affected [2]
- No greater risk of congenital malformations/stillbirth [1]
- **Complications:** UTI, decubitus ulcers, impaired pulmonary function (above T4), autonomic dysreflexia, anaemia, VTEs, unattended delivery [2]
- Multidisciplinary approach

Obstetric complications

- T10: uterine contractions
- T11-12: cervical dilatation
- Lumbosacral roots: perineal and vaginal sensations
- **Lesions above T10**: no/altered perception of fetal movements, silent labours, unattended deliveries
- Malpresentation: poor abdominal muscle tone
- Reduction in preterm labour rate – prevention of UTI and regular surveillance
- Self palpate for fetal movements and contractions, monitor other symptoms (cramps, SOB, spasticity)

Urinary tract infections

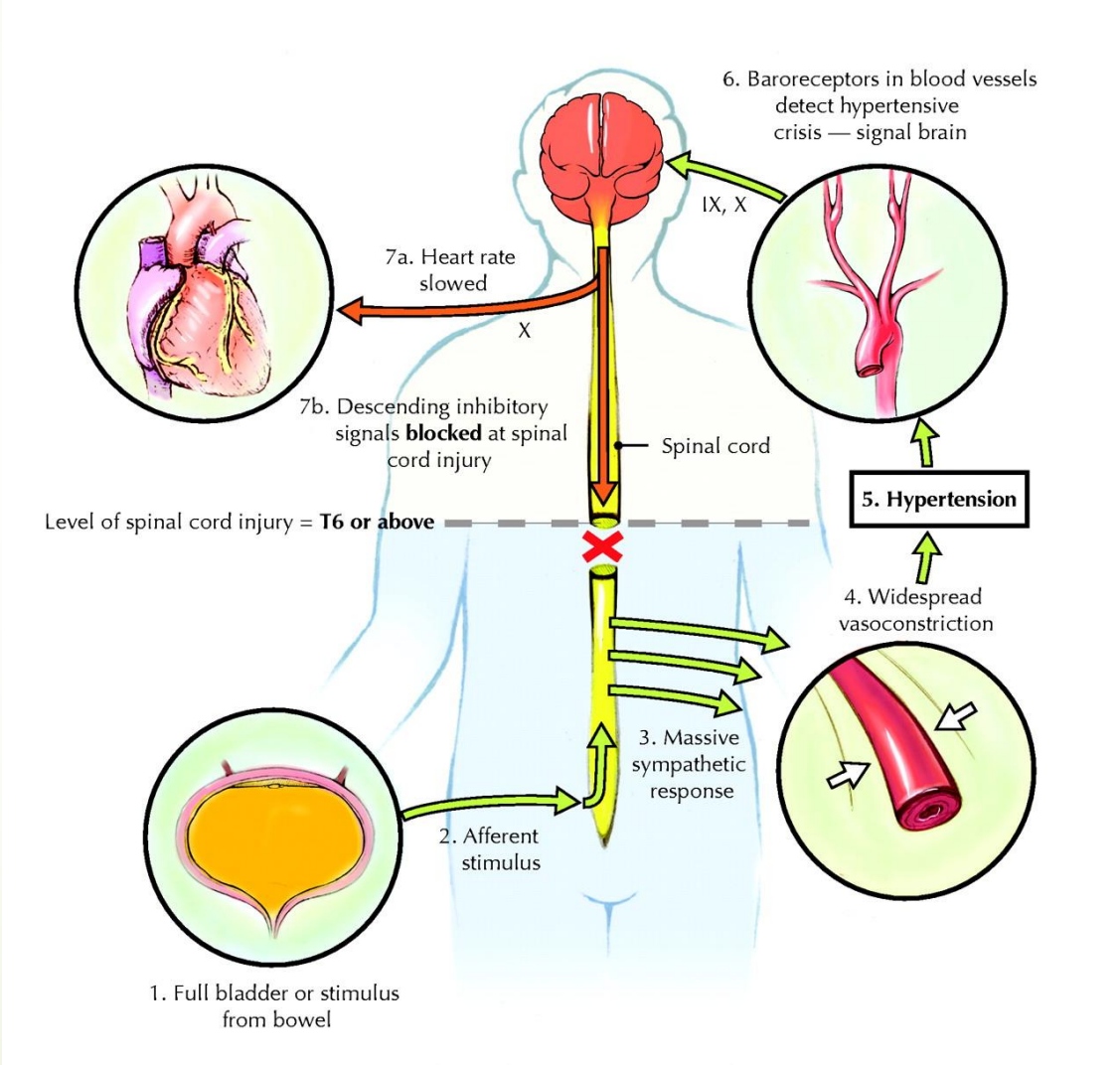
- Asymptomatic bacturia, urinary incontinence, UTI and pyelonephritis increased. Bladder/renal calculi
- Indwelling and intermittent self catheterisation, neurogenic bladder, incomplete emptying
- Important to avoid urinary retention → autonomic dysreflexia
- Frequent cultures and prophylactic antibiotics recommended by ACOG [2]
- Suprapubic catheter to be changed within 24 hours of surgery

Respiratory and Cardiovascular Systems

- Lesions above T4-6: paralysis of ventilation muscles, increased bronchial secretions, reduced mobility and ability for adequate chest clearance, susceptibility to pneumonia
- Assess respiratory function at booking – pregnancy further reduces function
- Chest physiotherapy, CPAP, mechanical ventilation
- Orthostatic hypotension: loss of sympathetic innervation below lesion + reduced systemic vascular resistance [1]

Autonomic dysreflexia

- Up to 85% of those with transection at or above T6 [1]
- Exaggerated sympathetic activity in response to stimuli below transection (disconnection of negative feedback) – catecholamine release + vasoconstriction [2]
- **Sx:** hypertension, bradycardia, nausea, sweating, respiratory distress, CVA, hypertensive encephalopathy, convulsions [1]
- **In labour:** utero-placental vasoconstriction, fetal distress and bradycardia
- Distension/manipulation of hollow viscus (vaginal, bladder, bowel, uterus)
- Epidural/spinal extending to T10 (blocks stimuli), antihypertensives [2]



Other complications

- Decubitus ulcers:
  - Weight gain, tissue oedema, immobility – 6% patients
  - Regular skin checks, Waterlow scoring, pressure mapping, pressure relieving mattress, and 2 hourly position change [3]
  - Optimise Hb, avoid excessive weight gain [2]
- VTE:
  - Increased risk first 6 months after injury [3]
  - No evidence to recommend thromboprophylaxis for all – individualised assessment [1]
- Bowel:
  - Avoid constipation – high fibre, laxatives, manual evacuation

Labour

- Vaginal delivery preferred, early epidural if at risk of AD
- Waterbirth not advised
- If SCI at young age/pelvic trauma – suspect CPD and perform clinical pelvimetry and advice CS
- Pelvic/spine changes (scoliosis/contracture) may affect fetal decent
- Difficulty in lithotomy position (spasticity & altered anatomy)
- Avoid forced flexion if spasms encountered – optimal positioning
- Gentle catheterisation and vaginal examinations
- Increased need for instrumental delivery as poor abdominal muscles, and to prevent AD [4]
- Local analgesia and absorbable sutures for episiotomy repair

Postnatal care

- Autonomic dysreflexia can occur PN – continued epidural use
- Regular analgesia to prevent AD
- Early physio and 2 hourly position changes to prevent VTE and ulcers
- Regular physio and hoisting from day 5 post CS
- Breastfeed as normal, extra stimulation required if lesion above T4

Patient Interview

No significant changes regards B&B except UTIs

Foetal movements

Postural Changes: Bump and Breasts

Increase risk of falls

No Physiotherapy Input

Smooth 1st Trimester

Change in COG affecting: W/C use, transfers & positioning

MDT working: Physios, OTs and W/C services

Perinatal Care

- Antenatal classes and advice regards c-section
- Involvement of Moving & Handling Team
- Independence on post labour ward affected by equipment & space
- Guidance regards motherhood with spinal injury
  - Lifting & moving baby
  - Slings, cots & prams
  - Ongoing wheelchair adaptations

Learning points

- Support throughout each stage
- Importance of pre-hab
- The postural and subsequent COG changes in the pregnant paraplegic
- Better education / preparation of the patient for the delivery and immediate PN period
- Enhanced MDT approach particularly between Midwife, PT, OT & W/C services.
- Equipment / Facility within hospital
- Equipment & childcare management – links with external / community agencies such as ‘South East Slings’

References

- [1] Castro J, Lourenco C, Carrilho M. Successful pregnancy in a woman with paraplegia. BMJ case rep. 2014; 2014: bcr2013202479.
- [2] Obstetric Management of Patients with Spinal Cord Injuries. ACOG Committee Opinion No. 275. American College of Obstetricians and Gynecologists. Obstet Gynecol 2002;100:625–7
- [3] Dawood R et al. Pregnancy and spinal cord injury. The Obstetrician and Gynaecologist 2014; Volume 16, Issue 2, April 2014, Pages 99–107
- [4] L.L. Cross et al. pregnancy following spinal cord injury. West j med. 1991 May; 154(5): 607–611.