Spinal Cord Tumors and Thoracolumbar Trauma – David Newell, MD , Kojo Hamilton, MD(SSF)

Intraspinal extradural   
Intraspinal intradural extramedullary  
Intraspinal intradural intramedullary

Differential diagnosis  
Astrocytoma  
- benign  
- diffuse (biopsy and limited resection)  
- malignant  
- well-demarcated  
Ependymoma (most common in adults)  
Meningioma  
Schwannoma (most commonly come off dorsal sensory roots)  
Hemangioblastoma  
Arachnoid cyst  
Filum terminale ependymoma

MS  
inflammatory lesion  
SC infarct  
AV fistula  
cavernous malformation

Foix-Allajouanine Syndrome

Make sure you are at the correct level  
Use ultrasound if unsure

Make sure that you rule out other trauma

T11-L2 is the transition zone

Spine stability: the ability to withstand stress without progressive deformity or neurological damage  
The anterior column provides 80% of the axial load bearing, while the posterior column resists 80% of the torsion or shear

Stable burst fracture – no posterior column injury  
Unstable burst fracture – posterior column injury

Flexion-distraction injury and Chance fracture: posterior Ligamentous disruption [posterior fixation or 360 for severe canal compromise]  
Fracture dislocation – injury to all 3 columns; high incidence of neuro deficits [posterior fixaiton for complete injury or 360 for incomplete injury]

AO classification system  
A – compression  
B – distraction  
C – rotation

Thoracolumbar Injury Severity Score (TLICS)  
<3 points = non-operative  
4 = non-op v op  
>/= 5 points = surgery likely  
always consider qualifiers (overall health, patient reliability, etc) – patient compliance is a major factor

5 treatment goals  
1 prevent further neurological deterioration (promote neurological recovery)  
2 stabilize the spine  
3 restore anatomical alignment  
4 facilitate early and active mobilization  
5 minimize pain and deformity

Posterior treatment of T-L injuries  
- fractures in patients with rheumatologic disorders  
 - Ankylosing spondylitis  
 - DISH  
 - RA  
 - osteoporosis  
 - malnourished

MIS Extreme Lateral   
- Left side up  
- Flex the table after the patient is secured with tape on the table  
- Do not move the C-arm, move the table to obtain crisp endplates and midline spinous processes  
- Retractor handles directed posteriorly when operating in the retroperitoneal space and anteriorly when operating the the pleural cavity  
- Avoid injuring the neurovascular bundle when access is between the ribs  
- Incision for retroperitoneal access should be make parellel to the direction of the fibers of the external oblique  
- Ensure good closure of the transversalis fascia  
- Secure the segmental vertebral vessel early in the surgery  
- The diaphragm may be encountered from T10-L3

Sacral Fractures (J. Chapman, MD – SSF)  
- High-speed v. insufficiency fractures  
- Exam: blood, prostate, rectal (tone, sensation, reflexes (ankle wink, cremasteric, BCR))  
- CT scan with reformats (coronal, sagittal, axial)  
- MRI neurography (visualize nerves)  
- CT myelography is not very useful as sac ends between S1 and S2  
- S1: 60-80% ventral foramen filled by root  
- S4: 15% ventral foramen filled by root  
- EMG: L5, S1, anal sphincter  
- Pudendal SSEPs for S1-4 monitoring  
- post-void residual for long-term follow-up  
- S2, S3: Bladder  
- S3, S4, S5: Rectal

