SUPPLEMENT

The 28 Factors Assessed

7 Patient Related Factors

Age	
Sex	
Smoking	Any history of smoking, either past or present
Hypertension	Pre-existing diagnosis of hypertension, identified in medical / GP records
Diabetes Mellitus	Any diagnosis of type I or II diabetes mellitus identified in medical / GP records
Excess alcohol consumption	As recorded in medical / GP records
Body Mass Index	Patients weight on admission to hospital (kg)/height (metres) [REF 2]

3 Injury Related Factors

Level of Injury	Classified as: cervical (C1-7), thoracic (T1-T11) and conus (T12-L1)
AIS grade on admission	American spinal injury association Impairment Scale [REF 1] assessed by neurosurgical team
Primary Survey MAP	Lowest MAP (1/3 systolic + 2/3 diastolic) recorded in trauma admission notes.

6 Management Related Factors

Hours from injury to surgery	
Duration of surgery	As documented in operative notes
Intraoperative blood loss	Blood vol. =75 ml/kg. Blood loss graded 1–4 as % of blood vol. (1:<15%, 2:15–30%, 3:30 –40%, 4:>40%) [REF 2]
Extent of decompression	Spinal alignment / Spinal alignment and laminectomy / Spinal alignment and laminectomy and duroplasty
Surgical Approach	Posterior / Posterior and anterior
Mean MAP during surgery	Average of the mean arterial pressures (1/3 systolic + 2/3 diastolic) recorded in anesthetic operative notes.

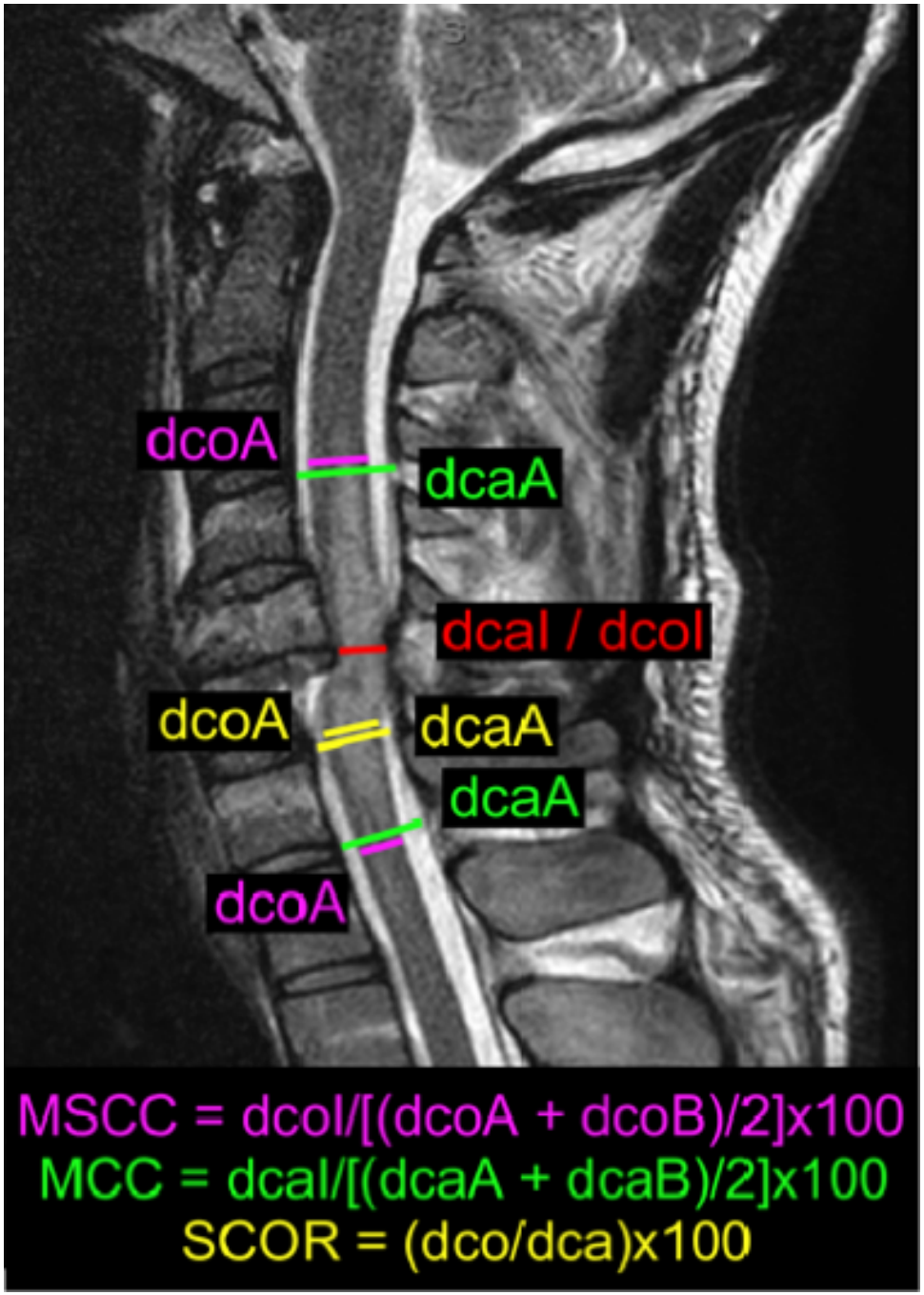
12 Pre-operative MRI related Factors

Epidural hematoma	Assessed on T1 and T2 sagittal and axial images
Intraparenchymal hematoma	Assessed on T1 and T2 sagittal and axial images
Cord transection	T2 sagittal. Cord obliterated; complete translocation of anterior and posterior cord margins cranial and caudal to injury.
No. of sagittal inter-vertebral levels with no CSF signal	Graded qualitatively on T2 mid-sagittal imaging. Pattern defined as normal (CSF visible around the cord), partial (partial effacement of CSF around the cord) and complete (total loss of CSF signal around the cord) (Supp. Fig. 1A)

Inj. Level Ave. Sp. Cord Occupation Rate: SCOR	Mid Sagittal Cord Diameter / Mid sagittal dural sac diameter *100 Calculated at each vertebral and intravertebral level throughout the region of spinal injury. (Supp. Fig. 1A)
Maximum Spinal Cord Compression (MSCC)	Diameter of spinal cord at maximal compromise / average diameter of spinal cord above & below x100% (Supp. Fig. 1A)
Maximal Canal Compromise (MCC)	Diameter of canal at maximal compromise / average diameter of canal above & below injury x100% (Supp. Fig. 1A)
Sagittal extent of T2 cord signal abnormality	Measured in mm on mid sagittal T2 weighted imaging (Supp. Fig. 1B)
Average normal cord in injured cord	Mid Sagittal T2 Cord diameter – Mid Signal change diameter Based on 'space available for cord' calculation and developed for this analysis (Supp. Fig. 1B)
% Injured Cord Signal Change	(mid sagittal diameter of cord signal change / mid sagittal cord diameter) x100 Based on 'spinal cord occupation ratio' and developed for this analysis. (Supp. Fig. 1B)
BASIC Score (0 – 4)	0: no cord signal abnormality, 1: T2 hyperintensity confined to grey matter, 2: intrameduallary T2 hyperintensity extends beyond grey matter involving some (not all) white matter, 3: T2 hyperintensity involving grey matter and all of the white matter, 4: T2 signal hyperintensity with area of hypointensity representing hemorrhage in cord (Supp. Fig. 2)
Sagittal Grade	1: no signal change, 2: single level T2 hyperintensity, 3: >1 vertebral level T2 signal hyperintensity, 4: T2 signal hyperintensity with areas of hypointensity representing haemorrhage (Supp. Fig. 3)

REF 1. Association ASI. American Spinal Injury Association: International Standards for Neurological Classification of Spinal Cord Injury.

REF 2. Gutierrez G, Reines HD, Wulf-Gutierrez ME. Clinical review: hemorrhagic shock. Crit Care 2004;8:373-81.



SUPP. FIG. 1A. Spinal Cord injury MRI Grading Systems.

Maximal Spinal Cord Compression (MSCC)

Maximum Canal Compression (MCC)

Spinal Cord Occupation Ratio (SCOR)

dca = diameter of canal

dcaA = diameter of canal above injury

dcaB = diameter of canal below injury

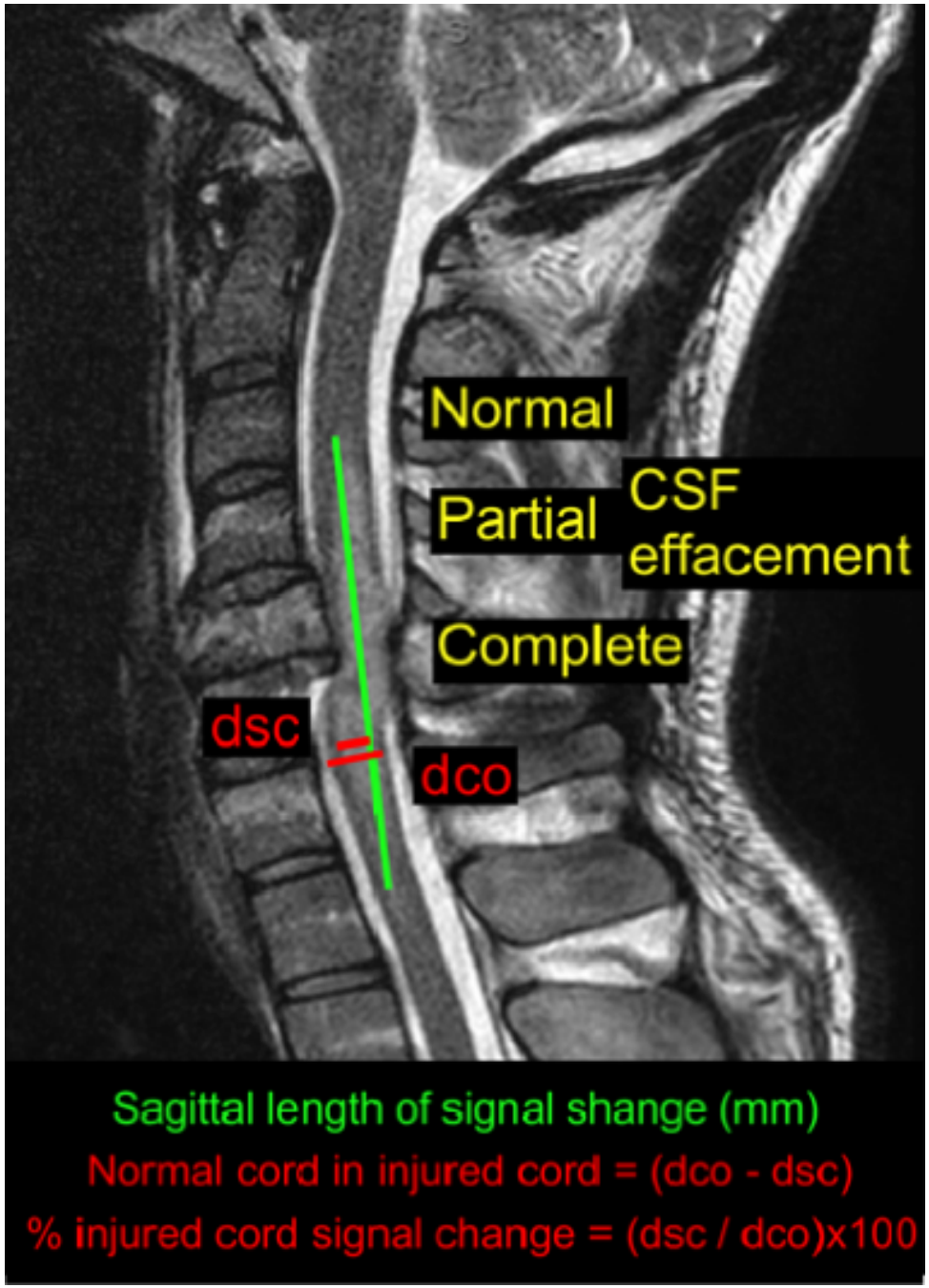
dcaI = diameter of canal at injury level

dco = diameter of cord

dcoA = diameter of cord above injury

dcoB = diameter of cord below injury

dcoI = diameter of cord at level of injury



SUPP. FIG. 1B. Spinal Cord injury MRI Grading Systems.

CSF effacement around cord

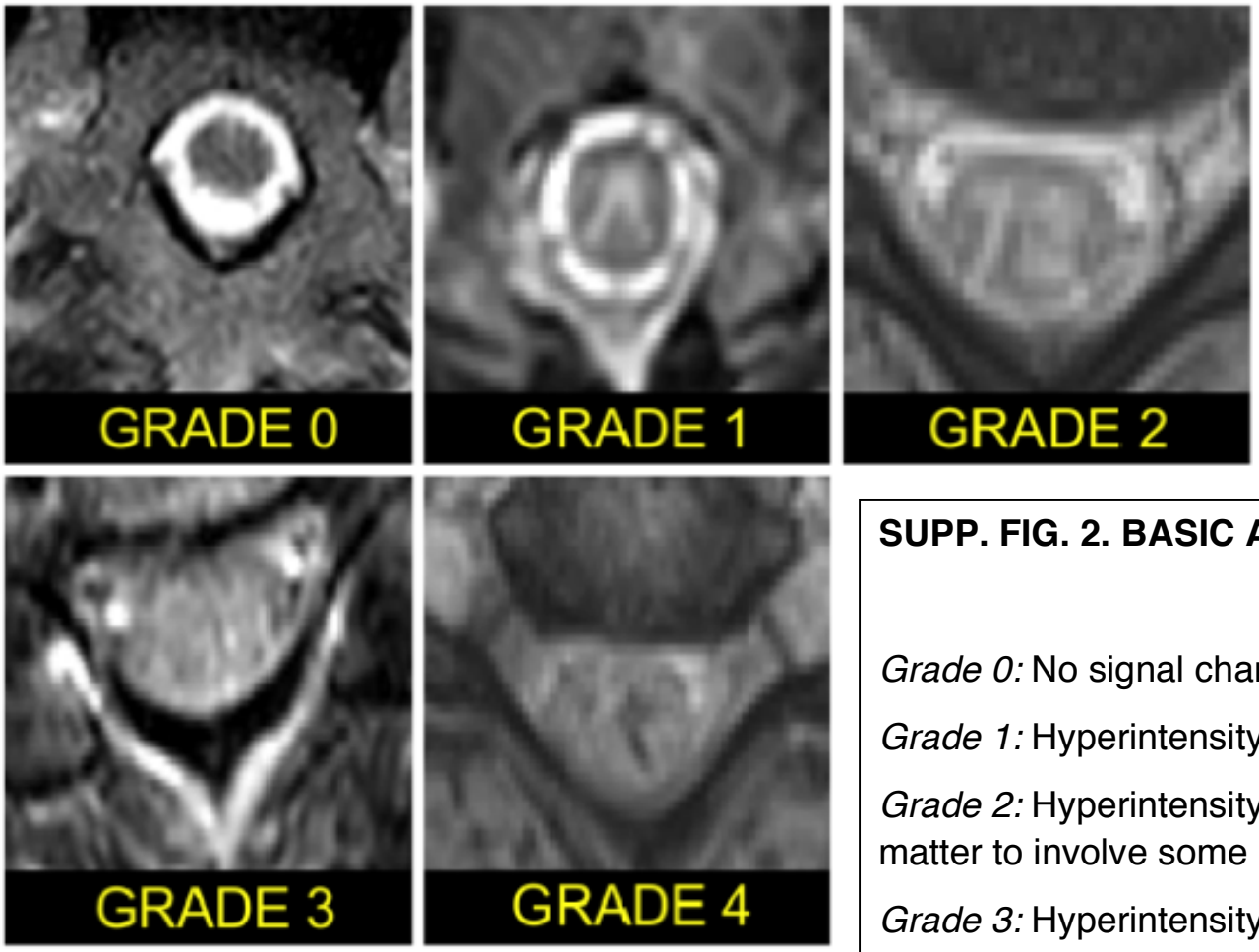
Sagittal length

% cord signal change

Normal cord in injured cord

dco = diameter of cord

dsc = diameter of cord signal change



SUPP. FIG. 2. BASIC Axial MRI T2 grading

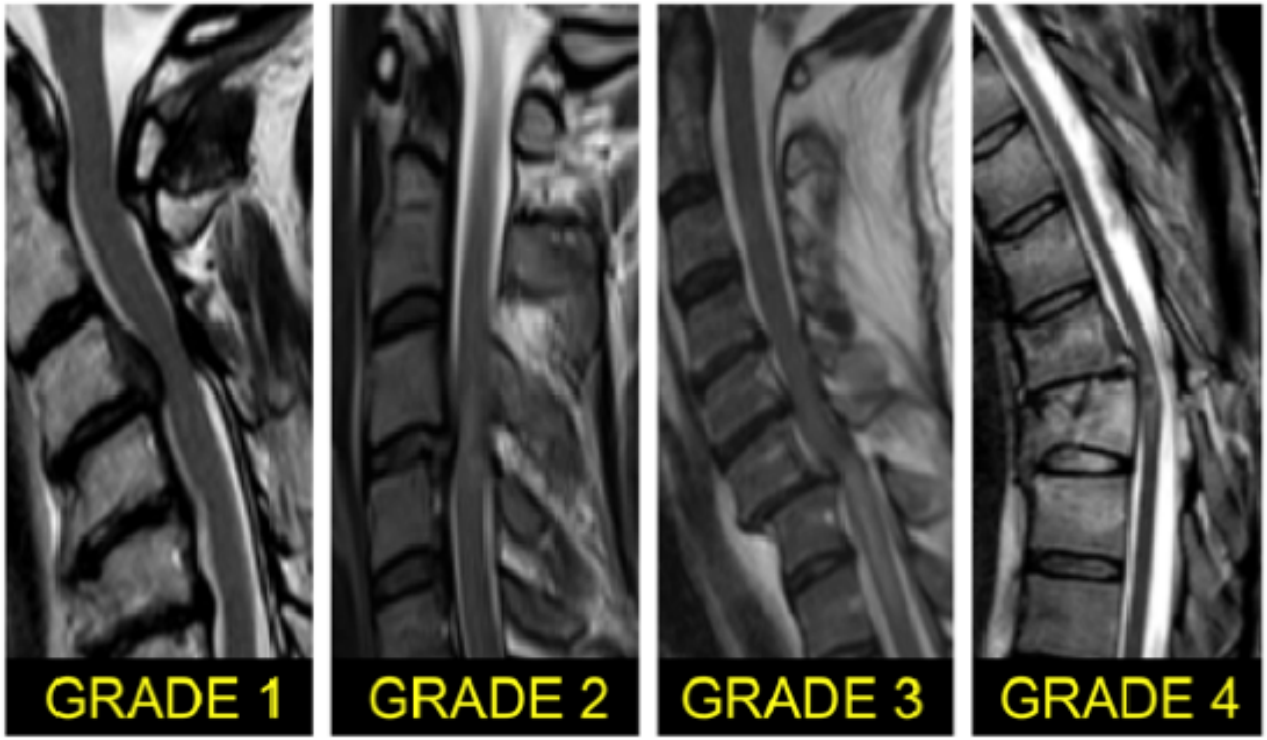
Grade 0: No signal change

Grade 1: Hyperintensity confined to grey matter

Grade 2: Hyperintensity spreads beyond grey matter to involve some but not all white matter

Grade 3: Hyperintensity involves whole axial cord

Grade 4: Area of hypointensity indicative of hemorrhage



SUPP. FIG. 3. Sagittal grade.

Grade 1: No cord signal change.

Grade 2: T2 hyperintensity confined to only 1 vertebral body.

Grade 3: T2 hyperintensity spanning >1 vertebral body.

Grade 4: Area of hypointensity indicative of hematoma