

**Anaesthesia Management of a 14 year old Male
with C1-C2 dislocation posted for C1-C2
fixation via anterior approach.**

Presenter: Dr. Adnan Qadri (JR III)

CHIEF COMPLAINTS:

Ganesh Devkale, a 14 year old male child, brought by mother immediately to the hospital after fall from a tree with chief complaints of:

- Loss of consciousness : LOC was transient for about 10 minutes.
- Isolated pain in the cervical region
- Cervico-occipital tenderness
- Neck stiffness

HISTORY OF PRESENTING ILLNESS

- Pain and stiffness in the cervico-occipital region
- Inability to turn or lean the head to one side or the other (loss of range of motion)
- No history of any weakness or numbness.
- No history of convulsions.
- No h/o head injury
- No history of ENT bleed, vomiting.

BIRTH HISTORY

- Full term, normal vaginal delivery at hospital
- Baby cried immediately at birth
- Birth weight: 2.8 kg
- Immunised till date
- No history of any NICU stay
- Developmental milestones achieved

PAST HISTORY

- No history of any co-morbidities
- No history of any trauma in the past
- No history of prior surgery or blood transfusion
- No history of any congenital anomalies

PERSONAL HISTORY

- Diet: Vegetarian
- Appetite: Normal
- Bowel/Bladder: Regular
- Sleep: Normal
- Drug/ Food allergy: None

FAMILY HISTORY:

Not significant.

GENERAL EXAMINATION

- Patient conscious and co-operative
- Weight: 25 kg
- Afebrile
- Pulse: 80 bpm
- BP: 90/60 mm Hg
- Respiratory Rate: 16 breaths/min
- No pallor, icterus, cyanosis, clubbing, lymphadenopathy, oedema
- Neck movements restricted
- MPC – Could not be assessed due to presence of rigid cervical collar (Philadelphia collar)

SYSTEMIC EXAMINATION

CARDIOVASCULAR SYSTEM

INSPECTION:

- Precordium – appears normal, no pulsations or dilated veins.
- Apical impulse seen in left 4th ICS.

PALPATION:

- Inspectory findings confirmed.
- Apex beat felt in the left 6th ICS, lateral to midclavicular line

AUSCULTATION: S1 S2 heard normally,
no murmurs.

- **RESPIRATORY SYSTEM:**

Air entry bilaterally equal, No adventitious sounds.

- **PER ABDOMEN EXAMINATION:**

Soft, non tender

No guarding or rigidity,

No organomegaly

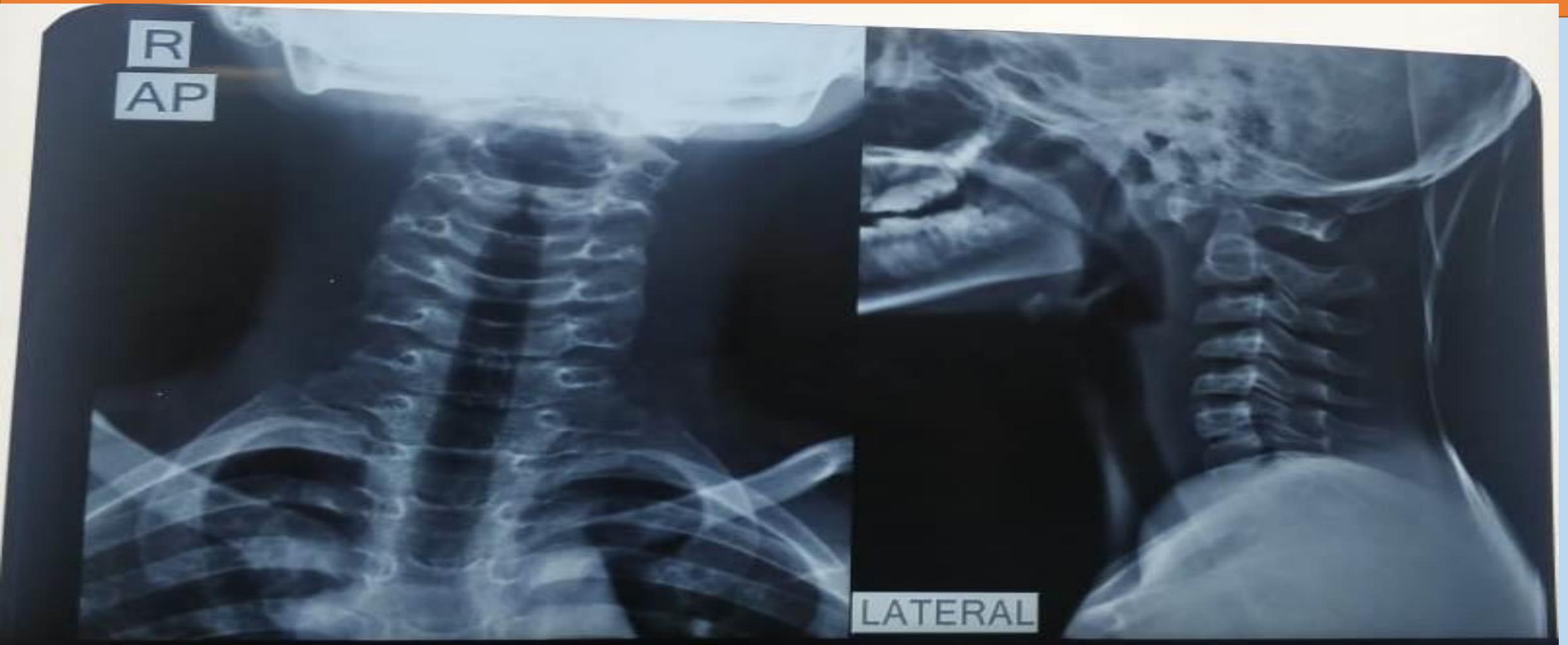
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CNS EXAMINATION

- Patient is conscious, co-operative, well oriented in time place and person
- No cranial nerve abnormality seen
- Power – Upper limb: Left – 5/5
Right- 5/5

Lower limb: Left- 5/5
Right- 5/5
- Reflexes- Normal
- Sensory : No sensory deficit present

GANESH, PRE-OP X-RAY

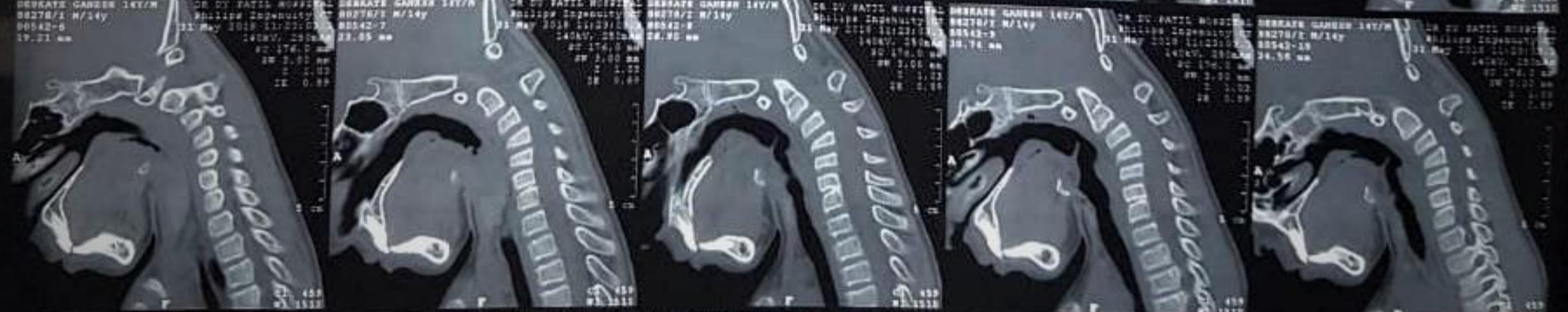


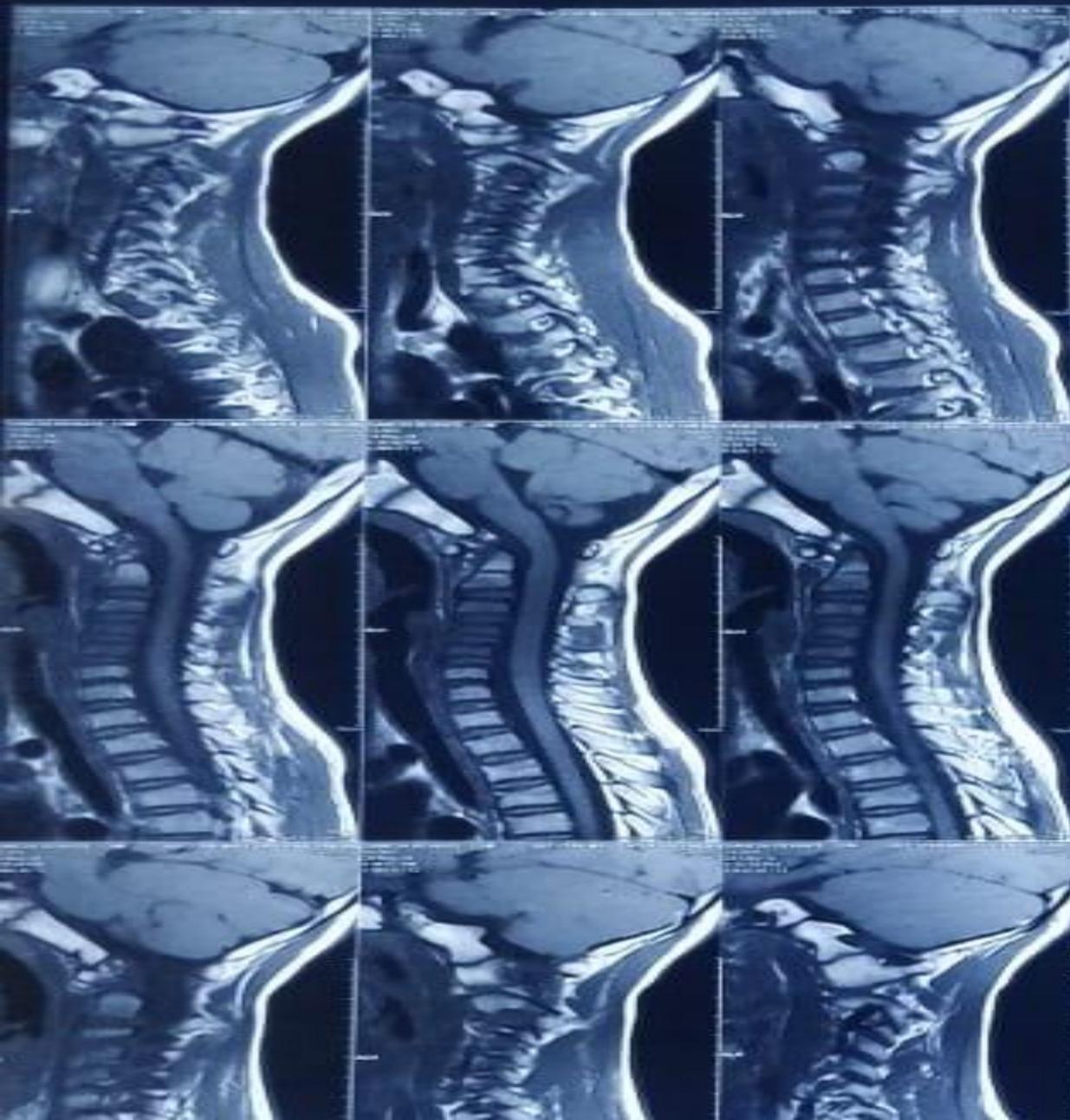
INVESTIGATIONS

- Haemogram 13.0 g/ dl
- Liver function tests
- Kidney function tests
- Blood sugar level
- Serum electrolytes
- Bleeding time and Clotting time, PT/INR
- Chest x-ray.
- ECG

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MRI OF CERVICAL SPINE

- There is evidence of atlanto axial subluxation.
- There is widening of atlanto dental interspace measuring 7mm, minimal fluid collection observed in atlanto dental space.
- There is no evidence of significant disc herniation at any level indenting the thecal sac.
- The spinal cord displays normal parenchyma signal intensity the existing nerve root appears normal.
- Minimal soft tissue is observed in pre vertebral space of cervical spine

CHALLENGES FOR AN ANAESTHETIST

- Anesthesiologists work to prevent or minimize secondary injury of the nervous system and improve the outcome of medical procedures by optimizing their skills and equipment to make an anesthesia plan.
- Consideration of neuroprotection , cervical spinal cord movement and compression during airway management suggest awake fiberoptic bronchoscopic intubation for stable patients and direct laryngoscopy with manual in-line immobilization in emergency situations.
- Increased risk of greater blood loss due to anterior approach.
- Maintenance hemodynamic stability during the procedure.

ANAESTHESIA

- Patient arrived to the operating room wearing a rigid cervical collar (Philadelphia collar) which was removed.
- Patient was pre-oxygenated with 100% Oxygen for 3 minutes with number 1 anatomical face mask.
- Patient was premedicated with Inj Glycopyrrolate 0.1 mg, Inj Midazolam 0.5 mg, Inj Ondansetron 2.5 mg, Inj Fentanyl 50 mcg.
- Anaesthesia was induced with Inj Propofol 50 mg.
- After ventilation was confirmed, Inj vecuronium 3 mg was injected.

- 3 minutes after the administration of muscle relaxant, manual-in-line stabilization of the cervical spine was performed by an assistant to minimize neck movement during tracheal intubation.
- Patient was intubated with number 5.5 Flexometallic endotracheal tube using C-MAC video laryngoscopy. The intubation was successful, atraumatic and achieved in less than 15 seconds.
- Correct tube placement was confirmed by auscultation and capnography .
- Anaesthesia was maintained with oxygen, nitrous oxide, sevoflurane, and intermittent doses of inj vecuronium.
- Multimodal analgesia was given throughout the procedure.

- Patkar's anterior approach with plating at C1-C2 was done ,Surgery lasted for 4 hours.
- Intra operatively vitals were maintained in normal range.
- IV fluids 930 ml
- Blood loss was minimal and urine output 350 ml.
- After the procedure patient was reversed with inj. neostigmine .05mgs / kg bwt and inj. glycopyrolate 0.008mgs / kg bwt , patient was extubated , was conscious , cooperative , obeying commands with stable vitals.
- Patient was shifted to surgical ICU for post op care.

D-24288
GANESH DEVKALE
14 Years
Male

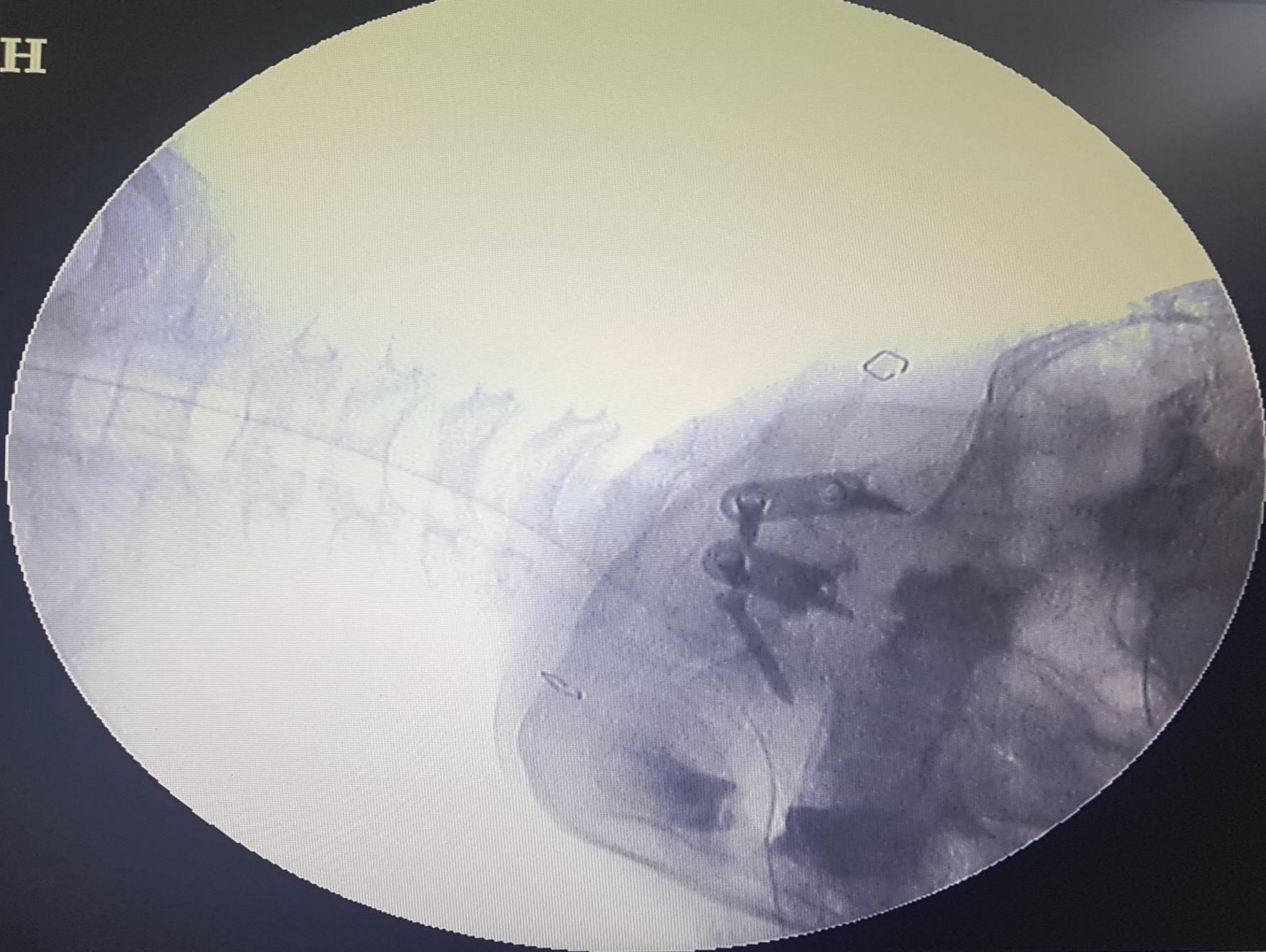
FLEXION

EXTENTION



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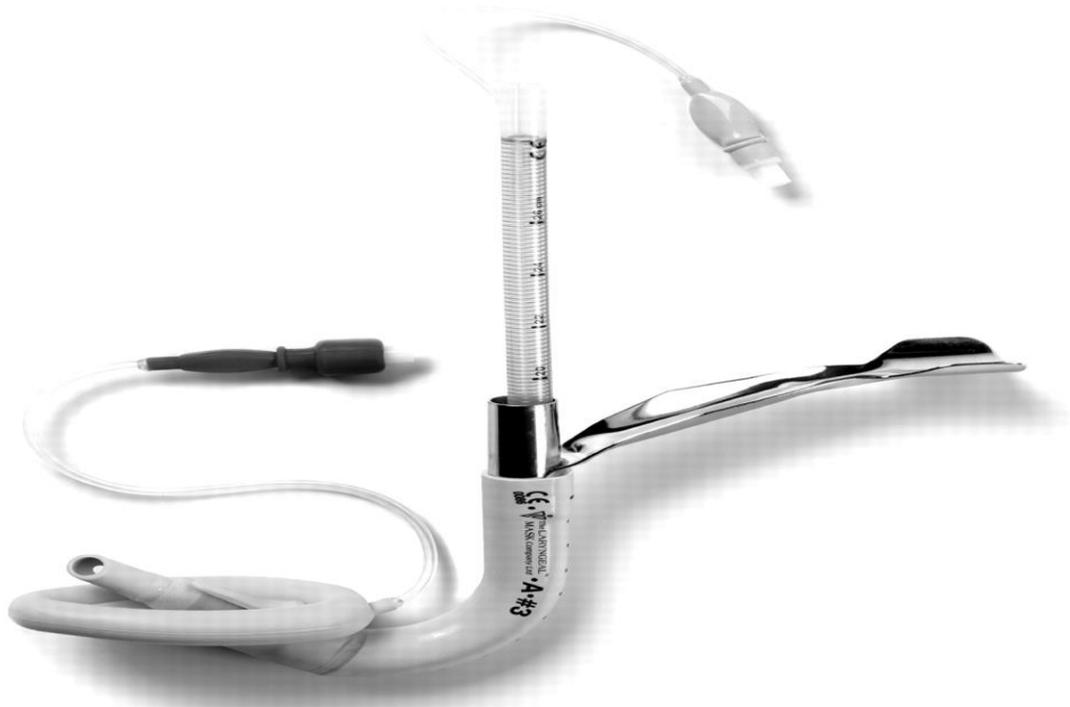


DISCUSSION

- The available evidence suggests that, in unstable cervical spines, basic airway manoeuvres such as chin lift and jaw protrusion cause as much displacement as direct laryngoscopy that is why we chose C – MAC video laryngoscope for intubation.
- Fractures of the odontoid process result from forceful flexion or extension of the cervical spine. The odontoid process is the most common site of fracture in the cervical spine, accounting for 9% to 15% of cervical spine fractures. These injuries can cause neck pain and cervical instability that put patients at risk for catastrophic spinal cord compromise.

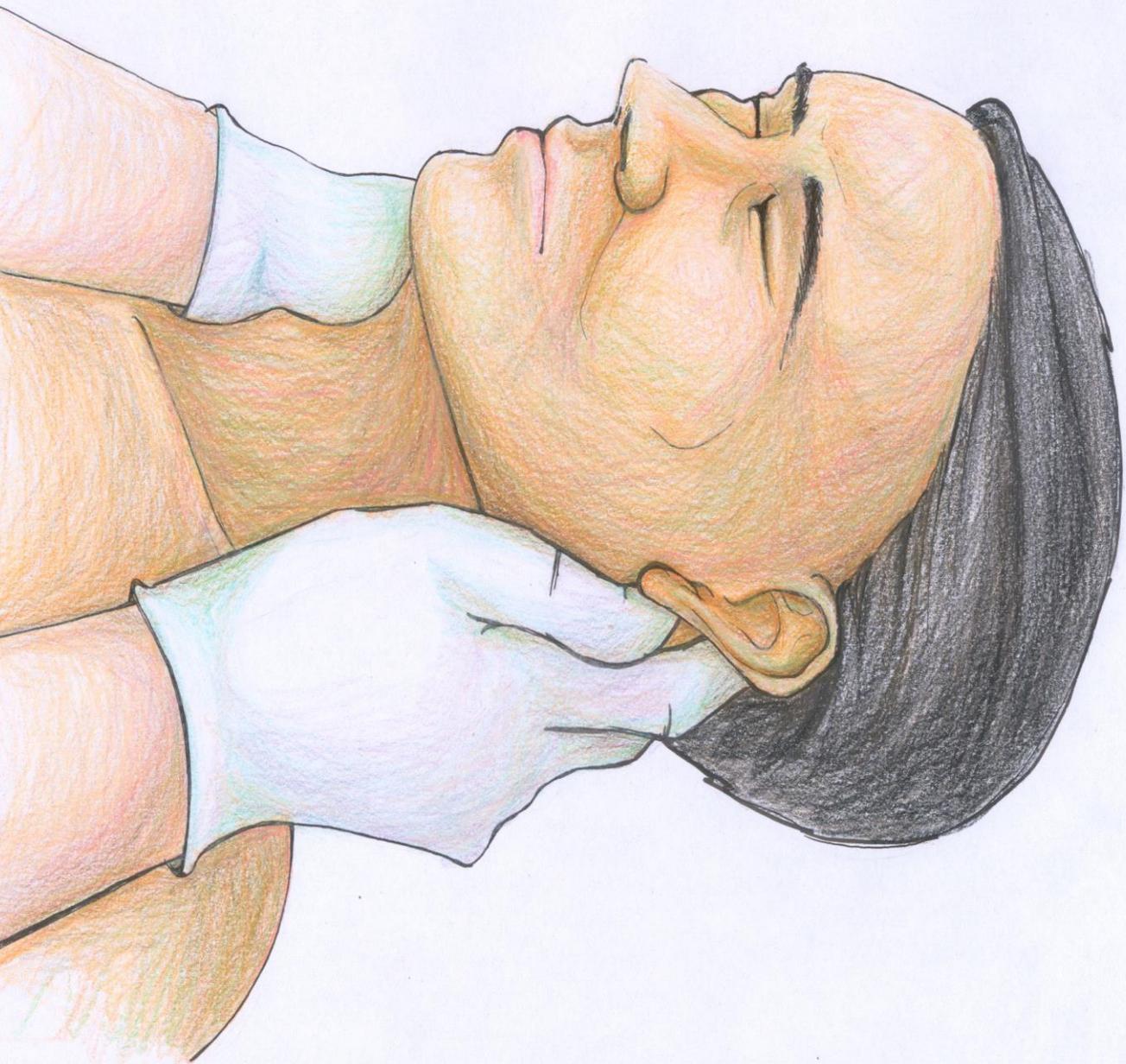
- Manual in-line stabilization (MILS) of the head and neck during direct laryngoscopy seems a sensible idea, although one without evidence of efficacy in terms of improved outcome. However, there may be greater difficulty in obtaining a good laryngeal exposure when MILS is applied.

- Anaesthetists should use a technique in which they are competent . These techniques include awake fiberoptic intubation, laryngeal mask airway (LMA), Intubating laryngeal mask airway (ILMA), alternative laryngoscopes such as the Glidescope or Bullard, video laryngoscopes or a surgical tracheostomy – as a last resort.



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MILS during intubation - standing opposite t

CONCLUSION



BENEFITS IN CERVICAL SPINE INJURY:

- Video laryngoscopes improve the view at laryngoscopy, Therefore less force is required to obtain glottic view.
- Video laryngoscopy attenuates cervical extension during laryngoscopy, an effect that can be useful in patients with cervical spine disease or instability.



- The C-MAC video laryngoscope is built like a standard Macintosh laryngoscope with a micro video camera and fiberoptic fibres built into the end of the blade. The camera projects the image in real time to a portable video screen.

- Therefore as a precautionary measure in order to reduce the risk of secondary damage during intubation of the patient with C1-C2 dislocation, it was decided to intubate the patient using C-MAC video laryngoscopy.

- Postoperative outcome was uneventful due to skillful intubation technique and proper intraoperative management.

THANK YOU...