THE NORTHERN HOSPITAL

SPINAL MOTION RESTRICTION - HEAD HOLDING

Belt section with inlaid medallions of the Emperor Constantius II in his chariot and his wife Faustina, Gold and semiprecious stones, Mid Fourth-Century A.D
Walters Art Museum, Maryland USA.

The Emperor was greeted with welcoming cheers, which were echoed from the hills and riverbanks, but in spite of the din he exhibited no emotion, but kept the same impassive air as he commonly wore before his subjects in the provinces. Though he was very short he stooped as he passed under a high gate; otherwise he was like a dummy, gazing straight before him as if his head were in a vice and turning neither to the right nor the left. When a wheel jolted he did not nod, and at no point was he seen to spit or to wipe or rub his face or nose or to move his hand. All this was no doubt affectation, but he gave

other evidence too in his personal life of an unusual degree of self-control, which one was given to believe belonged to him alone. As for his habit throughout his reign of never allowing any private person to share his carriage or be his colleague in the consulship, as many deified emperors have, and many other similar customs which his towering pride led him to observe as if they had all the sanctity of law, I will pass them by because I am conscious that I have reported them as they occurred.

Ammianus Marcellinus, late 4th Century A.D

In 337 A.D Constantine the Great died. He had bequeathed the Empire to his three sons, Constantine, Constantius and Constans. By so doing he was in vain hope that his dynasty would defy the brutal traditions of the Imperial succession first established with the sons of the early Third century emperor Septimius Severus. The established tradition of succession was by assassination of one's predecessor. And when brothers were jointly bequeathed the empire by their fathers, this tradition invariably overwhelmed any sense filial affection. Constantine had decreed that Constantius would have the eastern provinces including Constantinople, Constans would have the central heart of the empire, principally, Italy and Africa and Constantine, his name sake, would have the west, Gaul, Spain and Britain, but virtually before Constantine was cold in his grave his eldest son Constantine was at his brother's throats in a desperate Darwinian struggle of the survival of the fittest. Each of the sons of Constantine had inherited, if not their father's genius, then at least his iron clad driving ambition. It would be sixteen years before the last man standing would claim the undisputed throne of the entire empire.

The first to succumb was the eldest son Constantine II, who in the belief of his right of primogeniture, invaded the territories of the youngest brother Constans - a bad move. In 340 A.D a vanguard of elite Illyricum troops of Constans ambushed Constantine at Aquileia and killed him. Constans became the emperor of west as well as the central empire. For ten years an uneasy relative peace reigned but then in 350 A.D the situation deteriorated once again. The brothers were not the only ones who aspired to the purple. Powerful commanders of the biggest legions had time and again tried their luck in usurping the throne, when encouraged to do so by their troops, and when they thought they had a reasonable chance of succeeding. Just one such commander suddenly emerged in 350 A.D. His name was Magnentius, of barbarian descent, his father was a Briton and his mother a Frank, but he had distinguished himself in a barbarian contingent that had fought and remained loyal to Constantine the Great. Under Constans, he had been become a field army commander in charge of two elite legions - the Joviani and the Herculiani. Though he was ungrateful, disloyal and ambitious, he had the support of his elite legions, and in January 350 A.D he claimed the purple. Constans was killed by Magnentius's men whist attempting to flee towards Spain. For the next three years Magnentius was the usurping emperor of the entire west.

Needless to say, this was not a situation that Constantius in the east was prepared to accept. In 351 A.D Constantius invaded Magnentius's lands and defeated him at the battle of Mursa Major, somewhere in present day Croatia. Magnentius fled to the furthest reaches of Gaul, where he held out for another two years, but after more defeats at the hands of Constantius's legions, he saw that his situation had become hopeless. In 353 A.D he committed suicide. Sixteen years after the death of Constantine the Great, the

Roman world was once again united under the rule of a single emperor, Constantius II. Constantius ruled then as sole emperor for a further eight years. In 360 A.D however, whilst engaged in operations in the far east against the Persians, he began to become increasingly alarmed at the popularity of one of his commanders, his cousin Julian, operating in Gaul against the Alamanni and Franks with admirable success. He decided to call Julian's legions to the east to assist his own campaign, but Julian's troops resented this and perhaps even suspecting a trap encouraged Julian to declare for the purple himself - which he did. Constantius did not hesitate. He immediately wound up his campaign in the east and set off to Gaul with his army to confront his treasonous cousin. The confrontation however, never came. In the winter of 361 A.D Constantius died of a fever, at Mopsucrene in Cilicia, in modern day southern Turkey.

Constantius II had ruled for twenty four years, an impressive period for an emperor of Imperial Rome, considering that many did not last even one year. Due partly to the longevity of his reign we have a relatively rich amount of historical information about him. The eminent historian of Roman antiquity, Michael Grant, summed up his reign thus: "Constantius II inspired personal loyalty amoung those who worked for him - while scrupulously maintaining the dignity of his office, and without demeaning himself by an excessive regard for his own popularity", especially as the son of Constantine the Great. A amusing glimpse into Constantius' sense of "dignitas" has survived in an eye witness account by Ammianus Marcellinus, a Roman historian and a soldier in Constantius's army, of his visit to Rome in the spring of 357 A.D. So concerned was he by his dignity as Emperor in public he remained so statuesque in his processional chariot that his head did not move in the slightest no matter what jolts, twists or turns his vehicle took - he appeared as if "a dummy, gazing straight before him as if his head were in a vice and turning neither to the right nor the left. When a wheel jolted he did not (even) nod..."The only time he moved his head was to "duck" to avoid an overhead arch - which he need not have done, as the archways were high, and he was quite short. Of course it was all part of the act - to show the people that he was not actually short at all!

When we need to perform a positional change in our patients with a potential (or actual) cervical spine injury, or temporarily remove their cervical collar, we do well to remember Constantius' famous entry into Rome in the spring of 357 A.D. There must be no movement of the head either to the left or the right, we must maintain it dummy-like in the exact same alignment as the rest of the body at all times!

SPINAL IMMOBILISATION PRECAUTIONS - HEAD HOLDING

Introduction

Prior to spinal clearance, the patient's head must be supported during positional changes, collar care and under any circumstances in which the collar is removed e.g. procedures such as central venous catheterisation etc.

Once the cervical spine is clear, head holding is no longer required. However, care must be taken to ensure that the patient's head remains in anatomical alignment on turning and lateral positioning.

The procedure is done whether or not a cervical collar is in place.

The aim of head holding is to ensure that the patient's head is maintained in the correct anatomical position throughout a movement such as trolley transfer or log roll (no flexion, extension, rotation or lateral bending of cervical spine).

The patient's head can be held from the top of the bed or from the side depending on the location of the patient and equipment surrounding the bed

Head holding with a collar in situ

Head holding may be performed in a number of ways on condition that the adopted method stabilizes the patient's head in a position of correct anatomical alignment and prevents flexion, extension and lateral tilting during the process.

The patient's head can be held from the top of the bed (Figure 1 below) or from the side (Figure 2 below), depending upon equipment constraints and the preference of the staff member designated to head hold.

Note however that in ED, head holding from the **top of the bed** is the preferred method.

The two recommended methods for head holding are outlined as follows:

1. Explain the procedure to the patient regardless of conscious state and ask the patient to lie still and to refrain from assisting.

2. Ensure that the collar is well fitting prior to commencement.

3. If applicable, ensure that devices such as indwelling catheters, intercostal catheters, ventilator tubing etc. are repositioned to prevent overextension and possible dislodgement during repositioning.

4. The designated head holder stands at the head or side of the bed with the bed at a comfortable height i.e. above waist height.

5. For head holding from the top of the bed:

- One hand is placed around the patient's jaw with fingers spread (for a ventilated patient, the endotracheal tube may be stabilised with the thumb and index finger).

- The forearm is used to stabilise the lateral aspect of the head.

- The other hand is positioned under the patient's neck with fingers spread.

- Firm pressure must be applied to restrict the possibility of flexion, extension and lateral tilting (Figure 1 below).

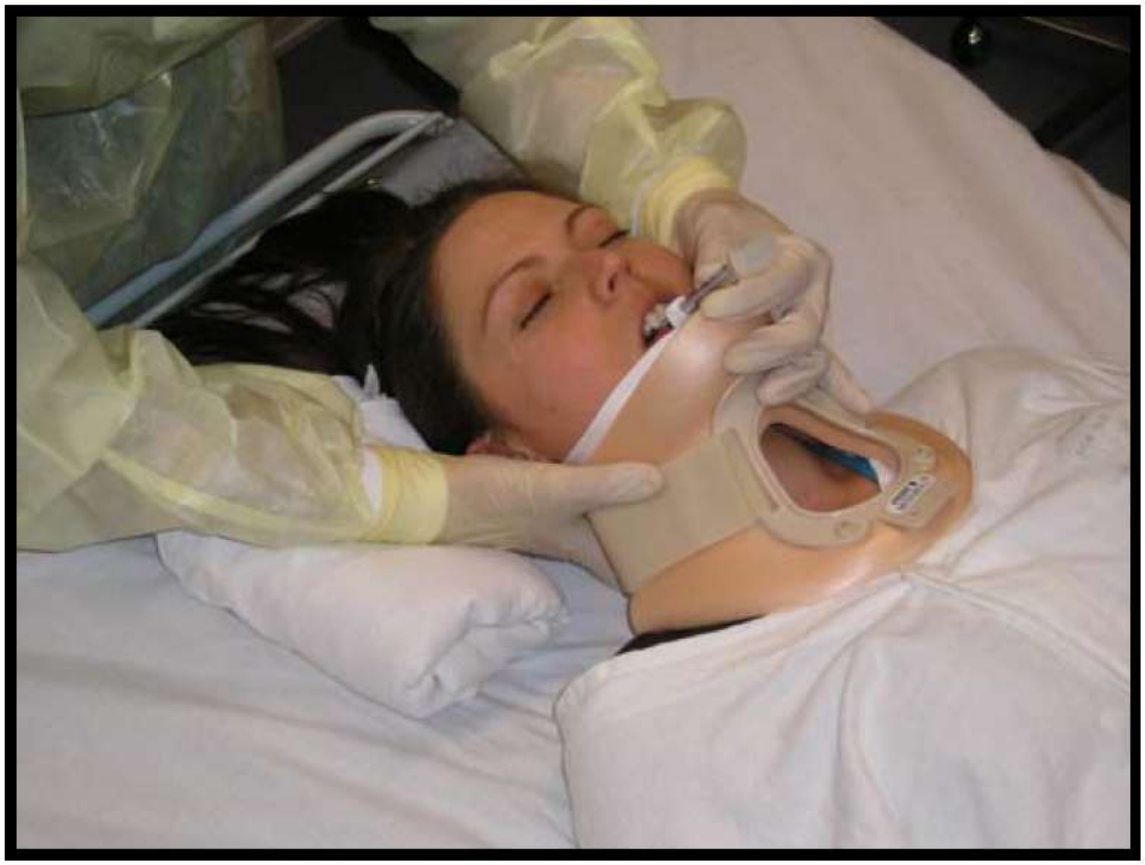

Figure 1: Head holding from the top of the bed.

For head holding from the side of the bed:

- The head holder stands on the side of the bed towards which the patient will be rolled.

- One hand is placed under the patient's neck with fingers spread.

- The other hand is placed over the patient's jaw (for a ventilated patient, the endotracheal tube may be stabilised with the thumb and index finger).

- Firm pressure must be applied to restrict the possibility of flexion, extension and lateral tilting (Figure 2 below).

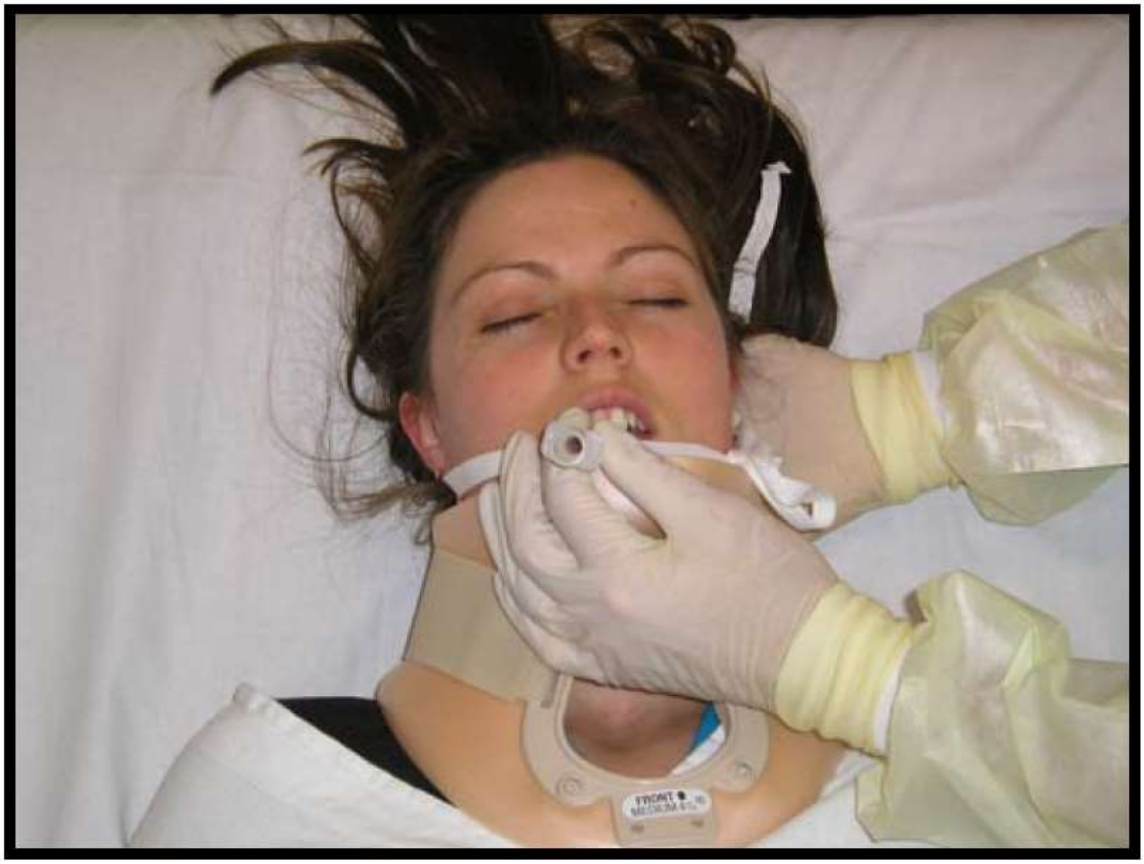

Figure 2: Head holding from the side of the bed.

6. The head holder is in charge of the procedure and must ensure that all other staff members are in correct position and are ready to commence.

   If the patient is to be turned or repositioned, the head holder may call "on my count, one, two and three." The turning will occur on "three".

   On completion of the procedure, if the patient is to be returned to the supine position, the head holder will again direct the procedure.

   For example, "back, one, two and three."

7. The turning must occur in one smooth action, with the patient's head and body remaining in anatomical alignment at all times.

8. If the patient is to remain in a lateral position, the head holder must continue to hold the head until the primary nurse has positioned padding beneath the patient's head to prevent lateral tilting and to ensure correct alignment.

9. If the patient is to return to the supine position, the head holder must continue to hold the head until the patient is in correct anatomical alignment, directing assistants to adjust position until alignment is achieved.

Head holding without a collar

Under some circumstances, a cervical collar will be removed temporarily (e.g. for the insertion of a central venous catheter) or if it becomes contraindicated (e.g. in the case of suspected collar-related increase in jugular venous pressure leading to elevated intracranial pressure).

In these cases, the head must be held until completion of the procedure and reapplication of the collar, or in therapeutically paralysed patients, until the patient's head is safely immobilised using sandbags.

Do not turn the patient without first reapplying the collar.

A recommended method is outlined as follows:

1. Explain the procedure to the patient regardless of conscious state and ask the patient to lie still and to refrain from assisting.

2. Ensure that the patient is lying in a supine position, arms are by his/her side, and head in neutral position, neck extended 10-15 degrees.

3. If the patient is conscious ask the patient to look vertically upwards and fix their eyes on a point on the roof.

4. The designated head holder stands at the head or side of the bed with the bed at a comfortable height i.e. above waist height.

5. The bed is moved to the horizontal position i.e no tilt

6. The head holder's hands are placed over the patient's shoulders with thumbs superior and splayed fingers inferior (beneath the shoulders).

   The lateral aspects of the patient's head can be supported with the head holder's forearms, with firm pressure applied to prevent movement.

   Alternatively, if access to the neck is specifically required for a procedure, the head holder's hands may be positioned directly onto the lateral aspects of the patient's head over the ears.

   As this alternate method is less stable, care must be taken to ensure that the patient is either fully cooperative or adequately sedated.

7. The head holder must continue to support the patient's head until the cervical collar has been reapplied or the sandbags are in place.

References

1. The Alfred Spinal Clearance Management Protocol, Helen Ackland, November 2009.

2. The Royal Melbourne Hospital Trauma Service Guidelines, May 2011 Version 3.0

3. Peter E. Fischer et al. Spinal Motion Restriction in the Trauma Patient - A Joint Position Statement. Prehospital Emergency Care 2018.

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Dr J. Hayes
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