Massive Retropharyngeal Hematoma with Airway Obstruction after Minor Injury

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Indian J Neurotrauma 2017;14:95–97

Abstract

Retropharyngeal hematoma can cause life-threatening airway compromise. We present a case of massive retropharyngeal hematoma following minor injury. The patient required immediate tracheostomy followed by evacuation of hematoma and cervical stabilization.

Keywords
- retropharyngeal
- hematoma
- airway
- obstruction

Introduction

Retropharyngeal hematoma can cause life-threatening airway compromise. It can develop hours to days after injury. Securing the airway plays the most important role in management of these patients. We present a case of massive retropharyngeal hematoma following minor injury.

Case History

A 49-year-old man presented in casualty with history of fall on the ground following stumbling. The patient presented with complaint of difficulty in breathing and speaking. No complaint of weakness of any limb or bowel/bladder complaint was present. There was no specific medical history such as any drug intake, coagulopathy, hypertension, or liver disease. On physical examination, blood pressure and pulse were stable, respiratory rate was 32 breaths/min, and SpO_2 was 92% on O_2 by Venturi mask. The patient was conscious, oriented, tachypnea, and stridor was present. He was moving all four limbs. On local examination, there was a bruise present on anterior aspect of the neck with diffuse swelling over the neck; more on left side as compared with right side. As the patient was tachypneic and did not maintain oxygen saturation, intubation was tried, but it was unsuccessful. Therefore, emergency tracheostomy was done. Contrast-enhanced computed tomography (CECT) of the neck was done, which showed well-defined hyperdense collection/hematoma in prevertebral space extending from C2–C7 with maximum width of 3.6 cm, with mass effect in the form of compression of oropharynx, esophagus, and larynx with near-total obliteration of airway at the level of vocal cords. The collection was also seen to abut the left common carotid artery, which, however, showed normal contrast opacification with fracture of the C4 vertebral body and its spinous process.

The patient was put on T-piece ventilation. Ryle's tube insertion was tried, but it was unsuccessful because of esophageal compression by hematoma. The patient was planned for surgery, and evacuation of retropharyngeal hematoma with C4 corpectomy with iliac bone grafting with plate and screw fixation was done. Intraoperatively, no active bleeding was encountered. Ryle's tube was inserted, and the patient was given feed through it. He was discharged on Ryle's tube feed and with tracheostomy. On follow-up, he was decannulated and oral feed were started. Now he is able to accept orally, ambulatory, and has no respiratory compromise (►**Figs. 1–4**).

Discussion

Various causes leading to retropharyngeal hematoma formation include infection, cervical spine trauma, great vessel trauma, violent head movements, iatrogenic injury associated with cardiac catheterization, cerebral angiography, parathyroid adenoma hemorrhage, and foreign-body ingestion, extreme coughing, vomiting and deep neck infection, anticoagulation, and hemorrhagic diathesis.[1,2]

received
January 17, 2017
accepted
October 31, 2017

DOI https://doi.org/10.1055/s-0037-1612648.
ISSN 0973-0508.

Fig. 1 Lateral X-ray of cervical spine. Red arrow showing increased thickness of prevertebral soft tissue. Orange arrow showing fracture of C4 vertebral body.

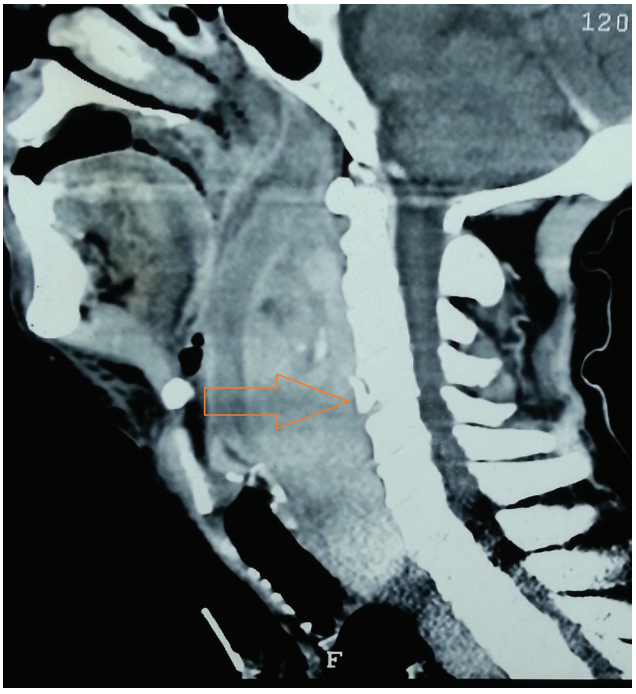

Fig. 3 Sagittal view of CECT of neck. Orange arrow shows fracture of C4 vertebral body. CECT, contrast-enhanced computed tomography

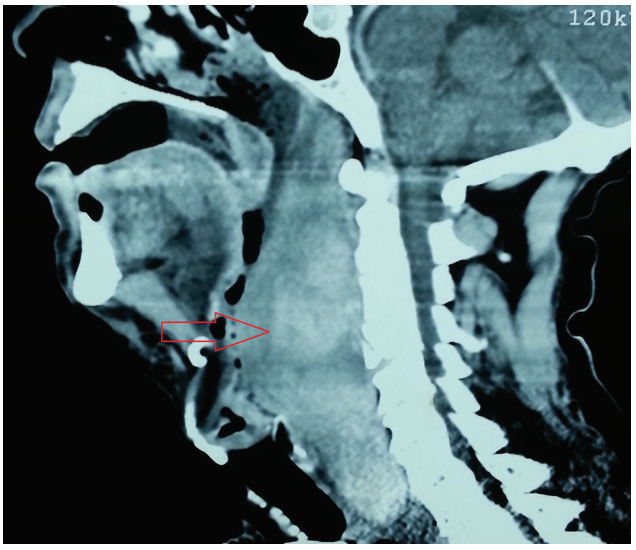

Fig. 2 Sag-ittal view of CECT of neck. Red arrow showing well-defined hyperdense collection/hematoma involving prevertebral space extending from the C2 to C7 level. CECT, contrast-enhanced computed tomography

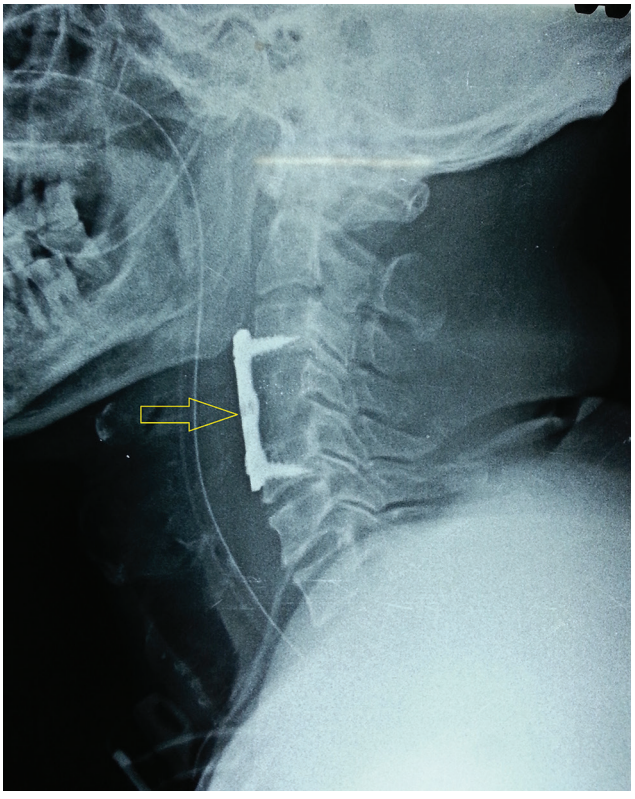

Fig. 4 Lateral X-ray cervical spine (postoperative). Yellow arrow shows screw, plate, and bone graft in situ. Screws in C3 and C5 vertebral body.

The anatomy of various fascial planes in neck is very important to understand the potential implications. Between the prevertebral fascia and posterior wall of the pharynx, the slit-like retropharyngeal space, consisting of loose areolar tissue, is found. The retropharyngeal space extends from the skull base to the superior mediastinum at the level of tracheal bifurcation at T4. At this point, the alar layer of the prevertebral fascia merges with the anterior border of the retropharyngeal space, the middle visceral layer of the deep cervical fascia. This space is found immediately posterior to the nasopharynx, oropharynx, hypopharynx, larynx, and trachea. The space is continuous with the parapharyngeal space laterally and bound by the carotid sheath. Hematomas are assumed to expand within this loose areolar tissue, which may delay symptoms for at least 2 to 3 hours and possibly cause death.[3,4]

Approximately 50 cases of traumatic airway obstruction caused by retropharyngeal hematoma have been reported in the literature.[5,6] Massive bleeding in the prevertebral space can affect the pharynx, larynx, esophagus, and trachea. The signs and symptoms are related to the amount of bleed. Symptoms include inspiratory stridor, dyspnea, hoarseness, neck pain, dysphagia, and odynophagia. These symptoms usually appear several hours after the trauma.[4] Radiologic diagnosis is made by lateral neck X-ray or CT scan that usually show marked widening of the prevertebral space.[7] Sometimes, a magnetic resonance imaging (MRI) is needed to differentiate blood from pus.[2]

As reported by Penning,[7] the normal prevertebral soft tissue widths were 4.6, 3.2, 3.4, 5.1, 14.9, 15.1, and 13.9 mm at C1 through C7 levels in neutral position. The upper limits of normal range for thickness of prevertebral soft tissue were 8.5, 6, 7, 18, and 18 mm at C1 through C7, respectively, reported by Rojas et al.[8] The upper limit of normal range was not determined for C4 and C5 levels due to variable position of the esophagus and larynx.

The main aspect of treatment of retropharyngeal hematoma is basically to secure the airway and remove the hematoma. Emergent airway protection is usually done by oral endotracheal intubation, assuming that there is cervical spine injury and due precautions are taken. Inability to visualize the uvula and epiglottis secondary to anatomic distortion caused by expansion of the hematoma can lead to difficult or unsuccessful intubation.[6,9] Many authors consider tracheostomy as the preferred method for maintaining the airway, as was done in our case.[5] Further management is either surgical drainage or observation.[4] Surgical drainage has to be in done as an emergency to relieve the tracheal compression in cases of rapidly expanding haematoma.[4] Careful observation by regular CT/X-rays is required in patients who are managed conservatively. Tracheal fiberoscopy can be done to look for the airway patency.

Conclusion

Retropharyngeal hematoma can cause life-threatening airway compromise. It can develop hours to days after injury even after minor precipitating injury. Treating doctor should be alert to the potential occurrence of this cause of acute or delayed airway collapse. The main treatment of retropharyngeal hematoma is to secure the airway with due precautions. Rapidly expanding and large hematomas need evacuation.

Conflict of Interest

None.

References

1 Chin KW, Sercarz JA, Wang MB, Andrews R. Spontaneous cervical hemorrhage with near-complete airway obstruction. Head Neck 1998;20(4):350–353

2 Kang SS, Jung SH, Kim MS, Hong SJ, Yoon YJ, Shin KM. Spontaneous retropharyngeal hematoma—a case report. Korean J Pain 2010;23(3):211–214

3 Frankfort M, Koeijers JJ, Zwaveling JH, van Mook WNKA. Severe retropharyngeal haematoma after apparent minor injury. Neth J Crit Care 2011;15(6):288–291

4 Shaw CB, Bawa R, Snider G, Wax MK. Traumatic retropharyngeal hematoma: a case report. Otolaryngol Head Neck Surg 1995;113(4):485–488

5 Duvillard C, Ballester M, Romanet P. Traumatic retropharyngeal hematoma: a rare and critical pathology needed for early diagnosis. Eur Arch Otorhinolaryngol 2005;262(9):713–715

6 Suzuki T, Imai H, Uchino M, et al. Fatal retropharyngeal haematoma secondary to blunt trauma. Injury 2004;35(10): 1059–1063

7 Penning L. Prevertebral hematoma in cervical spine injury: incidence and etiologic significance. AJR Am J Roentgenol 1981;136(3):553–561

8 Rojas CA, Vermess D, Bertozzi JC, Whitlow J, Guidi C, Martinez CR. Normal thickness and appearance of the prevertebral soft tissues on multidetector CT. AJNR Am J Neuroradiol 2009;30(1):136–141

9 Tsai KJ, Huang YC. Traumatic retropharyngeal hematoma: case report. J Trauma 1999;46(4):715–716