

## Case Report

# Attempted Hanging and Fracture of Hyoid Bone –A Rare Case Report

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## ABSTRACT

We present a rare case of attempted hanging with the fracture of hyoid bone. The victim 24 yrs old Hindu male admitted in our hospital as a case of attempted hanging on 30 October, 2013. The x-ray examination revealed fracture of hyoid bone. The rare thing in present case is that the fracture of hyoid bone was seen at the age of 24 yrs. It is contrary to the statement that fracture is seen after the ossification of hyoid bone in the age group of above 40 yrs. It is said 'once launched upon suicide by hanging, there is no retreat.' Consciousness is lost as soon as the ligature tightens round the neck, but in present case the victim survived. The details of the case are discussed with the possible cause of fracture of hyoid bone.

**Keywords:** Attempted hanging, Fracture of hyoid bone, Suicide, Ligature, Vital signs, Greater cornu and Lesser cornu

## INTRODUCTION

The incidence of suicide increases with increase in population. The National Crime Record Bureau of India, 2012, revealed the facts of suicide. Total no. of suicide in the year 2012 in India was 135445 (11.2/lakh). The hanging is a commonest mode of suicide and the incidence of hanging in year 2012 were 37.0% of total number of suicide<sup>[1]</sup>. Reason why hanging is a commonest form of suicide, might include the ease with which it can be performed noiselessly, the fact that it is generally effective and among all modes of suicide is perhaps the most painless<sup>[2]</sup>. The authors could not find the incidence of attempted hanging and also the fractures of hyoid bone in attempted hanging. It is said once 'launched upon suicide by hanging, there is no retreat.' Consciousness is lost as soon as the ligature tighten round the neck<sup>[3]</sup>.

In hanging, it has been reported that hyoid bone may be fractured in person usually above the age of 40 yrs. It does not occur in more than 5-10% cases. In hanging, hyoid bone fracture may be due to: (A) antero-posterior

compression (B) side-wise compression and (C) fracture due to traction, also known as avulsion fracture<sup>[4]</sup>.

## CASE DESCRIPTION

A 24 yrs old Hindu male admitted in our hospital as an alleged case of attempted hanging on 30 October 2013. He attempted suicide by hanging with a rope tied to a hook, but the rope had broken and he was fallen on the ground. At the time of examination, the victim was conscious and complaining of sever neck pain particularly in the anterior region, dyspnoea and coughing.

He was averagely built and nourished with no significant history of illness in the past and attempt to suicide. Vital signs including blood pressure, heart rate and respiratory rate were within normal limits. The patient's pupils were equal and reactive to light.

On examination of neck, there was a ligature mark of size 22 cm x 2.5 cm – 3.0 cm above the thyroid cartilage and was running obliquely, upward, laterally and backwards on both sides. It was disappearing in hair of

back of neck on right side and on left side was up to left mastoid process. The ligature mark was 3 cm below the left ear lobule and 7 cm below right ear lobule, pale brown colored and shallow. There was tenderness in region of cervical spine. All the systems including central nervous system were normal. The examination by ENT specialist revealed slight laryngeal edema.

X-ray cervical spine and chest were normal, but the x-ray lateral view of neck for hyoid bone revealed fracture of hyoid bone at the greater cornu with body on right side (Figure 1).



**Figure 1: X-ray showing fracture of hyoid bone**

## DISCUSSION

The hyoid bone is situated in the anterior midline of neck between the chin and the thyroid cartilage. At rest it lies at the level of third vertebrae behind and the base of the mandible in front<sup>[5]</sup>. It is suspended by stylohyoid ligament as well as muscles attaching to the mandible, styloid process, thyroid cartilage, manubrium and scapulae<sup>6,7</sup>. Functionally, the hyoid bone provides a movable base for the tongue, attachment points for the middle pharynx and maintains patency of the pharynx, required during swallowing and respiration<sup>[6]</sup>.

In males the greater and lesser cornu fuse to the body of hyoid bone unilaterally at 38.25 yrs and bilaterally at

53.16 yrs of the age respectively, while females achieve bony fusion unilaterally and bilaterally at 38.00 and 48.50 yrs of the age, respectively<sup>[8]</sup>.

Fractures of hyoid are typically associated with strangulation and traumatic cases do exist in the literature and include mechanisms such as blunt trauma, hyperextension, gunshot motor vehicle accidents, induced vomiting, cervical trauma and one case involving headlock.

Prior to the fusion of the elastic cartilaginous structure of the hyoid may offer protective mobility when exposed to trauma. The average age of fracture of hyoid bone as per standard text book of forensic medicine and toxicology is above 40 yrs, but the fractures have been reported in range from 15-55 yrs. A much higher prevalence in man than woman has been identified. This would suggest that despite the suggested mechanisms afforded by a lack of fusion these fractures still occur. Perhaps it is the activities being undertaken by individuals in this age range that is of importance rather than the age of fusion<sup>[9]</sup>.

As per police at the scene of incidence, doors of rooms were found broken and there was a stool by which the victim was able to reach to the hook. There was also found a broken rope in room. The door was broken by relatives. The findings of neck and scene of the incidence are consistent with hanging.

In every case of attempted hanging for medico legal purpose irrespective of age, the x-ray hyoid bone should be advised to exclude the fracture of hyoid. In this case, the region for fracture hyoid bone appears to be sideways compression.

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