

CASE REPORT

Petechial Hemorrhage of Tympanic Membrane in a Case of Attempted Suicide by Hanging: A Sign of Severity

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ABSTRACT

Assessment of a patient who has attempted suicide by hanging is an important emergency room call for an otorhinolaryngologist. As a norm, it is the neck that is assessed first in such a patient. Here, we discuss the otoscopic findings of petechiae of the tympanic membrane in these patients, which will help in finding the severity of the hanging, which in turn will be helpful to provide round-the-clock careful vigilant care for these patients.

Keywords: Partial hanging, Petechiae, Tympanic membrane.

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INTRODUCTION

Hanging is one of the common methods of suicide. The clinical assessment of hanging is necessary to determine the prognosis and to direct the line of management. Appropriate treatment will help to reduce mortality and morbidity of the patient.

Petechiae are tiny red spots caused by small vessel rupture. It occurs when there is red blood cell leak from the vessel wall. Petechiae appear when capillaries bleed, leaking blood into the skin. There are multiple causes of petechiae, such as infections, vasculitis, injuries, and straining (increased capillary pressure). In our patient, petechiae were seen on the tympanic membrane after an alleged attempt to suicide by hanging.

CASE REPORT

A 26-year-old female was brought to the emergency department of our hospital with alleged history of attempted suicide by hanging. There was a history of loss

of consciousness and frothing from the mouth. However, there was no history of bowel and bladder incontinence. On examination, Glasgow coma scale was 3/15, pupils were reactive to light, pulse was 82/minute, and SpO₂ was 98% with active bag and mask ventilation. Systemic examination showed a normal cardiovascular and respiratory system. However, decerebrate rigidity was present. Patient was intubated immediately.

On examination of the ears, petechiae were seen on the intact right tympanic membrane, as shown in Figure 1. Left ear examination was normal. Facial nerve was normal on both sides. Examination of the nose revealed normal findings. The neck was edematous. Ligature mark was seen below the level of the thyroid cartilage extending from the level of left lower lobe of the thyroid to the base of skull on the right side as seen in Figure 2. Eyes showed scleral hemorrhage.



Fig. 1: Petechiae seen on intact right tympanic membrane on otoscopy

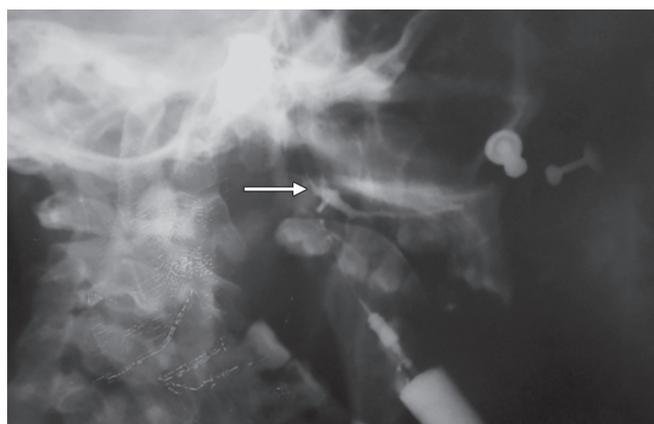


Fig. 2: Ligature mark on the neck of the patient seen extending from the left lobe of thyroid to the base of skull on the right side

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Patient was extubated after 4th day. Right tympanic membrane showed same findings of petechiae at the time of discharge 10 days after the incident.

DISCUSSION

External auditory canal terminates as tympanic membrane. Tympanic membrane also forms the lateral wall of the middle ear cleft. Tympanic membrane has three layers, viz., outer epidermal layer, middle fibrous layer, and inner mucosal layer.¹

Tympanic membrane is supplied by branches of the maxillary artery, which is the terminal branch of external carotid artery. The epidermal vessels arise from deep auricular branch of maxillary artery. The middle fibrous layer contains the anastomosis of blood vessels arising from branches supplying the external auditory and middle ear. The mucosal layer is supplied by mucosal vessels arising from branch of anterior tympanic artery, which is a branch of maxillary artery, the stylomastoid artery branch of posterior auricular artery, and thirdly the middle meningeal artery.¹

In case of complete suicidal hanging, the body is suspended on the ligature tied around the neck. This causes compression of the structures underlying the ligature. In case of suicidal hanging, the ligature goes below the thyroid cartilage and the knot is tied on lateral aspect, generally depending on the handedness on the person.² Hence, compression of the structures underlying this area can be expected. One important structure in this area is the carotid artery. Compression of the carotid artery causes a rise in pressure of the carotid vessels and its branches, which includes the maxillary artery. Subsequent rise in the pressure in the branches of maxillary artery and its branches and capillaries gives rise to capillary leak giving rise to petechiae.³ The increase in the intracapillary pressure will determine whether petechiae will occur or not.⁴ This explains the probable reason of petechiae in the tympanic membrane

on the side of the knot where maximum pressure is exerted. In our patient, the knot was on the right side, and therefore, right-sided petechiae were seen. Brain injury to the right side can be expected more. After this incident, routine tympanic membrane checkup was done in all suicidal hanging cases. The severity of the other patients was not as high as the above one. Also, no tympanic membrane petechiae were seen.

This makes us to draw a probable conclusion that tympanic membrane petechiae can be a sure sign of high degree of compression on the carotid artery.⁴ Petechiae in other branches of carotids can also be expected, in our case scleral petechiae. This can be taken as a red flag sign for aggressive treatment and monitoring.

CONCLUSION

Tympanic membrane petechiae in case of suicide hanging can be considered as a sign of severity. We have seen only one other similar finding being reported in literature, making it a rare finding. As ear, nose, and throat surgeons, it is important to know the cause of the petechiae seen on tympanic membrane posthanging in a patient, and it is a definite indication for round-the-clock monitoring and management of the patient.

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