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Cardinal Signs of Asphyxia with Reference to Hanging: An Autopsy Based Study

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ABSTRACT

Asphyxia is a major cause of death in hanging, drowning etc. where there is interruption in respiratory function. As autopsy surgeons, we come across many such cases in day to day practice. Sometimes it becomes difficult to detect asphyxia, specially in cases of hanging where time of suspension is very less and ligature mark is not detectable. In cases of partial hanging, drowning, smothering, gagging etc. external signs are difficult to identify in most of the time. So, in this study, we have tried to find out the cardinal signs of asphyxia so as to declare it.

INTRODUCTION

Asphyxia literally means pulselessness. It is caused by interference in exchange of oxygen and carbon dioxide in the body^[1,2]. It can be caused by various conditions like hanging, drowning, mugging, gagging etc. Hanging is the commonest condition. Although there are various causes of death in hanging but commonest is asphyxia. There are mainly five cardinal signs of asphyxia which are cyanosis, organ congestion, liquid blood in heart, ventricular hypertrophy and petechial haemorrhages of lungs and heart^[1,2,4].

It is not common that all the signs are found in each and every cases. To, declare asphyxia, combination of any two of the above are necessary. In almost all of the cases, cyanosis is found. Liquid blood in heart is also found in maximum cases^[2,3].

In cases of smothering with soft tools like pillow etc, partial hanging, hanging where suspension time is very low, external signs are very difficult to find. Cause of death can be determined after post mortem examination only. It becomes difficult for autopsy surgeon also to determine the cause in absence of any external sign, if internal signs are not properly known^[2-4].

So, in this study, we are trying to find out the cardinal signs of asphyxia and to determine which are most common.

Aims and objectives:

- To determine the cardinal signs of asphyxia
- To determine the commonest sign

MATERIALS AND METHODS

- Purposive sampling, case series study was done in the cases of death due to asphyxia in hanging, brought to Gauhati Medical College Hospital mortuary, through a prearranged proforma
- Decomposed body, delayed death in case of hanging were excluded from the study
- Clearance from internal institutional ethical committee was taken
- Study period was for 6 months
- Sample size was 200 cases
- Data was analyzed through appropriate statistical methods

RESULTS AND OBSERVATIONS

In the study we have observed five cardinal signs of asphyxia:

- That in 192 cases cyanosis was present. Cyanosis was present in the form of bluish discolouration of the nail beds externally
- Venous congestion was present in 195 cases. Out of those 5 cases where congestion was not present, 2 were severely anaemic

- In all 200 cases, liquid blood was present inside the heart on dissection. Clotted blood was totally absent in all cases
- Ventricular hypertrophy was not detected in most of the cases. In only 17 cases, ventricular hypertrophy was detected. In other cases ventricles were of normal size
- Petechial haemorrhage was found in 186 cases. Among them, in 97 cases petechial haemorrhage was present in lungs and in 113 cases, petechial haemorrhage was present on the heart. In 114 cases, petechial haemorrhage was present both over the lungs and heart

DISCUSSIONS

- In our study number of total cases were 200. All the cases were of hanging and the cause of death was asphyxia
- In 192 cases we have found cyanosis. It was externally found in the form of bluish discolouration of the nail beds. Even in dark coloured individuals also, cyanosis could be seen in this form
- Liquid blood was present inside the heart chambers in all the cases. This is the most common sign that we have found in asphyxia. Internally on dissection if we get liquid blood in heart the cause of death is probably due to asphyxia
- Venous congestion was the second commonest sign that we have found. Out of the cases, where congestion was not found, 2 were severely anaemic and 1 was of very old age. Age and pathological condition might have role in congestion, which will be studied in future
- Ventricular hypertrophy was the least common sign that was detected. Only in 17 cases out of 200 cases, ventricular hypertrophy was present. There may be presence of other heart issues also as history is not proper in most of the cases. So, this can not be regarded as cardinal sign of asphyxia
- Petechial haemorrhage of heart is more common in comparison to lungs. But combination of both is further more confirmative
- No any other consistent sign was found in case of asphyxia. These were the five cardinal signs that were found

CONCLUSION

Detection of a disease depends on the knowledge of the physician. Likewise, detection of the cause of death also depends on the knowledge of the autopsy surgeon. Asphyxia is a major cause death in day to day practice of an autopsy surgeon. But very few studies have been conducted till date to know the surest signs

of asphyxia. In this study we have tried to find out the same and found 5 surest signs which can be called as cardinal signs of asphyxia. With is knowledge, we can detect asphyxia in toughest situations also.

Educated we, aware WE... proper justice, adequate

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