THE NORTHERN HOSPITAL

NEAR HANGING

"Industry and Idleness: The Idle Prentice Executed at Tyburn" William Hogarth, Engraving print, London 1747

He arrived in London on 30th March, thoroughly disorientated without Johnson there as his focus and anchor…Evidence of his irresolution was his extravagant regimen of drunkenness, underworld sex, and public executions. On 13th May in an intoxicated stupor, he strayed into St. Paul's Churchyard, sang some ballads with two prostitutes in red cloaks, had his pocket picked, and fell down in the street. Continuing relations with Betsy Smith, a prostitute who turned out to be infected and for whom he arranged treatment at St Thomas's hospital, or with any of a number of other streetwalkers, brought him his sixteenth gonorrhoeal infection in mid-May. At times he had sex with more than one woman at a time. On 28th of April he attended the execution of nineteen

prisoners. "Not shocked", he wrote (though evidently he was)…he walked to Betsy Smith's dwelling nearby. "I have got a shocking sight in my head", he said to her; "take it out". "Her pleasing vivacity did remove it", he wrote.

Peter Martin, A Life of James Boswell.

The most notorious place of execution in history was probably Tyburn, originally a small village near a tributary of the Thames, just outside London. The exact location has long since been swallowed up by the 21st Century mega-metropolis that London has now become.

The first recorded execution took place at a site near the tributary in 1196. Executions then continued there for the next six centuries, with ever more frequency and ferocity, until the end of the Eighteenth Century. The method of execution was hanging. They were brutal undertakings, inhuman, degrading and worst of all they were highly public. By the peak of Tyburn's activity, public execution had become a principle source of "entertainment" for Londoners.

A specially designed gallows known as the "Tyburn tree" or "Tyburn Triangle" was used. Its triangular design resting atop a tripod of three great stakes allowed for simultaneous multiple hangings of up to two dozen victims in a panoramic arrangement for the "entertainment" of the surrounding crowds. So popular where these public hangings by the early Eighteenth century that specially constructed grandstands had to be created to better accommodate the crowd. There are records of up to 50,000 spectators turning up to these events by the mid Eighteenth Century. Apprentices would be given a day off to attend. One of these events was recorded by the brilliant satirist William Hogarth in 1747. The crowds consisted not only of the lowest types of London society, but also the very cream of the aristocracy who would purchase the best front row seats at great cost. On one occasion, the stands collapsed, reportedly killing and injuring hundreds of people, yet this seemed at the time to be considered a minor inconvenience, and the executions continued as a public spectacle unchecked. The hangings themselves were unimaginably brutal events. The condemned were expected to put on a "good show". A calm and dignified countenance on the part of the victim was greeted with clapping and cheering. The slightest sign of fear or faltering was greeted with a torrent of jeers, raucous laughter and unimaginably cruel abuse. Many spectators would come away from these events profoundly shocked by what they had seen. The great diarist James Boswell recorded his experiences of a Tyburn mass hanging in 1762 and despite appearing to put on a brave front in his journal was greatly disturbed by what he had witnessed. In typical Boswellian fashion he records that the only thing that could distract the horrible visions from his mind that he could not remove was a ferociously vigorous "session" with his favorite prostitute.

Hogarth captured much of the essence of these events in his print. The condemned would arrive in a horse drawn tumbrel that would often also contain the very coffin that would be used in the burial of the victim. A priest would accompany the condemned tormenting them further with exhortations of last minute repentance and visions of the everlasting torment of hell they would suffer if they did not repent. The dread spectacle of the Tyburn tree is seen in the background. A dove would be released into the air to alert the crowd of

the arrival of the condemned. A second would be released upon their hanging, seen no doubt by grieving families from afar. The English at this time considered themselves to be at the very forefront of the Enlightenment, and in many regards they were, especially in the field of the sciences, yet in the field of moral evolution, like much of the world at that time, they had progressed very little, if at all, from antiquity. It is interesting to contemplate the superior moral outrage which the English professed toward their "barbaric" French neighbors across the channel when reports began to come in of the horrors of the revolution and the guillotine.

Eventually these spectacles at Tyburn were banned, at least on the scale to which they had evolved. They remained however a powerful and haunting memory in English minds for at least a century afterward. Suicide by hanging was surprisingly uncommon in England during the Nineteenth Century largely because of the social stigma that Tyburn had created about this form of death.

Not only were the hangings at Tyburn a moral abomination, they were also technically abysmal. Unlike "modern day" hangings victims would often be dropped from as little as a few inches! Death was not quick. Instead of an instantaneous death by the "hangman's fracture", these deaths very often took many minutes. Death was by slow strangulation, not instantaneous fracture. Not that this especially bothered anyone at the time, it was all considered part of the "show"! The desperate and pitiful struggles of the victims were referred to as "doing the Tyburn dance or jig". There are heart rending reports of tearful relatives occasionally being allowed to pull on the victims legs to hasten the death of their loved one, when the process became uncomfortably prolonged, even for the tastes of the jeering spectators. In the Nineteenth Century in an effort to more "humanely" conduct hangings, some science was put into the equation, to the smug pride of a more "enlightened" century! Special "drop tables" were developed, based largely on trial and error, which demonstrated the correct height from which a victim should be dropped. This height was determined according to the condemned's weight but more particularly their height. The amount of rope to be used was measured precisely to within a quarter of an inch. This length could not be too long, otherwise decapitation could occur! If too short the victim would dance the slow dance of the "Tyburn jig".

We mercifully now live in a more morally enlightened age than that of our ancestors. We do not have executions, public or otherwise. We learn from the lessons of history. The horrific accounts of the Tyburn fields convince us that judicial execution should not be a part of our society. In the medical field this history tells us that those souls desperate and degraded enough to attempt self-hanging will be invariably successful should they fall from a height greater than their own. The lessons of Tyburn also tell us that if the fall is from a height that is less than this, a slow strangulation is much more likely. Unlike our ancestors at Tyburn who would reach out in these cases to hasten their loved ones death, we as medical practioners may have the opportunity to reach out and save them.

NEAR HANGING

Introduction

Hangings can be considered as judicial or non-judicial.

Judicial hangings, when properly conducted are virtually universally fatal from upper cervical spine fracture and brainstem transection.

Non-judicial hanging victims have a greater potential for survival if quickly found and cut down. In survivors who reach hospital, cervical spine fracture is uncommon, and the main pathology will be an ischemic cerebral injury together with a non-cardiac pulmonary edema.

Intubation and ventilation will be the mainstay of treatment in cases where significant hypoxic cerebral injury exists.

Mechanism

Neck strangulation may take 4 forms:

1. Hanging:
    - Here the weight of the body contributes to the strangulating force.
2. Ligature:
    - Strangulation with a ligature, (the body weight does not contribute).
3. Manual:
    - Manual strangulation, (the body weight does not contribute).
4. Postural:
    - Here the neck is placed over an object with the weight of the body contributing to the strangulating force, (most commonly seen in infants or toddlers).

Classifications

Hangings have been sub-classified as **judicial** or **non-judicial** as well as **complete** or **incomplete** and **typical or atypical.**

1. Judicial
    - There is a free fall of the body.

- Death by high cervical fracture is virtually assured if the distance fallen is **greater than the body height.**

- Most commonly the fracture will be the so-called **Hangman's fracture**, or bilateral fracture through the pedicles of C2, (see separate notes).

2. Non-judicial:

   These may be classified by intent:

   - Suicidal

   - Homicidal

   - Accidental, (which may include "auto-erotic" practices).

3. Complete:

   - The whole body is suspended

4. Incomplete:

   - Some part of the body is supported or in contact with the ground

5. Typical:

   - This has been defined as a hanging where the ligature (or other point of suspension) in centrally placed over the occiput.

   - This position has the greatest likelihood for arterial occlusion.

6. Atypical:

   - Here the point of suspension is at any point other than over the central region of the occiput.

Pathophysiology

Judicial hangings

These occur when the body free falls from a height at least as great as the body length.

Historically the major injury was considered to be a rupture of the transverse ligament of the atlas with subsequent brainstem damage, but this is rarely the case.

The injury is virtually always quickly fatal most commonly by means of a true Hangman's fracture, a bilateral fracture through the pedicles of C2 due to a distraction mechanism.

The brainstem is transected, with immediate loss of consciousness.

Respiratory and cardiac arrest quickly follow.

Bilateral common carotid artery dissection is also common.

Non-judicial hangings

In general terms there is a greater chance of survival with these types of hangings, as they are more often incomplete or atypical hangings or do not involve a free fall from sufficient height to cause immediate death.

The major pathology in these injuries is vascular congestion and cerebral edema that gives rise to a hypoxic encephalopathy.

There is initial venous obstruction, leading to raised intracranial pressure and reduced cerebral blood flow leading to *stagnant* hypoxia.

Loss of consciousness occurs. Loss of neck musculature tone follows this.

Arterial obstruction then follows, leading to *anoxic* brain injury.

The speed with which the above sequence occurs will depend on the exact nature of the mechanism, the force of the strangulating process as well as the time with which this is applied.

Less commonly the following may also occur:

- Airway fracture and obstruction
    - ♥ Trauma to the airway is more likely with manual and ligature type strangulations.
    - ♥ Airway compromise however does *not* appear to be the major cause of immediate death in most hanging victims.
- Carotid artery injuries, (intimal tears and dissections)
- In more elderly age groups, reflex vagal cardiac arrest secondary to sudden and severe carotid sinus pressure may also be a factor leading to death.
- Cervical fracture is *uncommon* with these types of hangings.

Complications

In general terms the following complications are possible with near hanging victims:

1. Airway injury:

    - Laryngeal and hyoid bone fractures, (these are more commonly seen with manual or ligature type strangulations).

2. Neurological:

    - Cerebral anoxia and edema with raised intracranial pressure, due to initial venous congestion followed by carotid/ vertebral arterial occlusion

3. Pulmonary:

    - Aspiration, delayed pneumonia
    - ARDS or non-cardiogenic pulmonary edema.
        - ♥ This is thought to be a type of neurogenic mediated pulmonary edema.

4. Cervical spine fracture:

    - Fatal injury in judicial hangings, most commonly by a Hangman's fracture with associated brainstem transection.
    - Much less commonly seen in non-judicial hangings

5. Vascular injury:

    - Carotid artery injury is relatively common
    - Vertebral artery injury may occur but is less common.

Clinical Assessment

Important points of history

These will include:

1. Exact method of hanging attempted.

    - Whether the body was completely suspended or partially supported by the ground.
    - Possible distance the patient had fallen, (in relation to the patient's height).

2. The time to rescue

3. The quality of pre-hospital treatment

4. Past history of depression or previous suicide attempts

Important points of examination

1. Immediate assessment of the adequacy of the airway

2. Assessment of ventilatory effort

3. Assessment of the circulatory status

3. Assessment of the conscious state

4. Look for confirmatory evidence of neck strangulation trauma:

    - Ligature marks, these may appear as a parchment like compression groove around the neck, however neck marking may be surprisingly minimal in victims who have been found quickly and promptly "cut down".

    - Fingernail marks may be evident in cases where victims have struggled to free themselves.

    - Neck bruising/ swelling

    - Petechiae may be seen at the ligature site and above this.

    - Evidence of laryngeal injury, (see separate guidelines).

Investigations

The type and extent of investigation of hanging survivors will depend on the clinical picture and the index of suspicion for any given pathology.

The following will need to be considered:

Cervical spine radiographs

These may be done to look for cervical spine fracture.

Indirect evidence of laryngeal injury may also be seen.

CT scan

This is the best investigation for the assessment of possible laryngeal injury.

It is also the best investigation for ruling out bony injury

There may be subtle evidence of hypoxic brain injury, however this will be better assessed by MRI scan.

MRI/ MRV and MRA

This will be the best investigation for assessing the degree of cerebral hypoxic injury.

MRA/ MRV is the best investigation for assessing the carotid and vertebral arteries.

12 lead ECG

This should be done, but is not an initial priority, unless an arrhythmia is documented on the ECG monitor.

Look for evidence of possible tricyclic antidepressant toxicity.

CXR

This will primarily be for:

- Aspiration
- Non-cardiogenic pulmonary edema

Drug screens

In cases of suicide attempt, the association of possible drug ingestion should be kept in mind.

- Blood alcohol level
- Paracetamol level
- Urinary drug screen

Management

1. Airway:
    - Securing a patent airway will be the immediate priority
    - There is significant potential for difficult intubation due to laryngeal injury and this must be anticipated.
    - Equipment for an emergency surgical airway should be on hand.
    - Semi-elective intubation by a direct vision fibre-optic technique may be required.

- If the airway is intact, the potential for *delayed* edema and obstruction should still be anticipated.

2. Cerebral hypoxic injury:

   - Any patient who has an altered conscious state or is cerebrally irritated will require prompt intubation and ventilation.

3. Cervical spine precautions:

   - Even though patients who survive hanging to reach hospital will rarely have a cervical spine fracture, appropriate precautions should still be taken, until this can be ruled out.

4. Respiratory support:

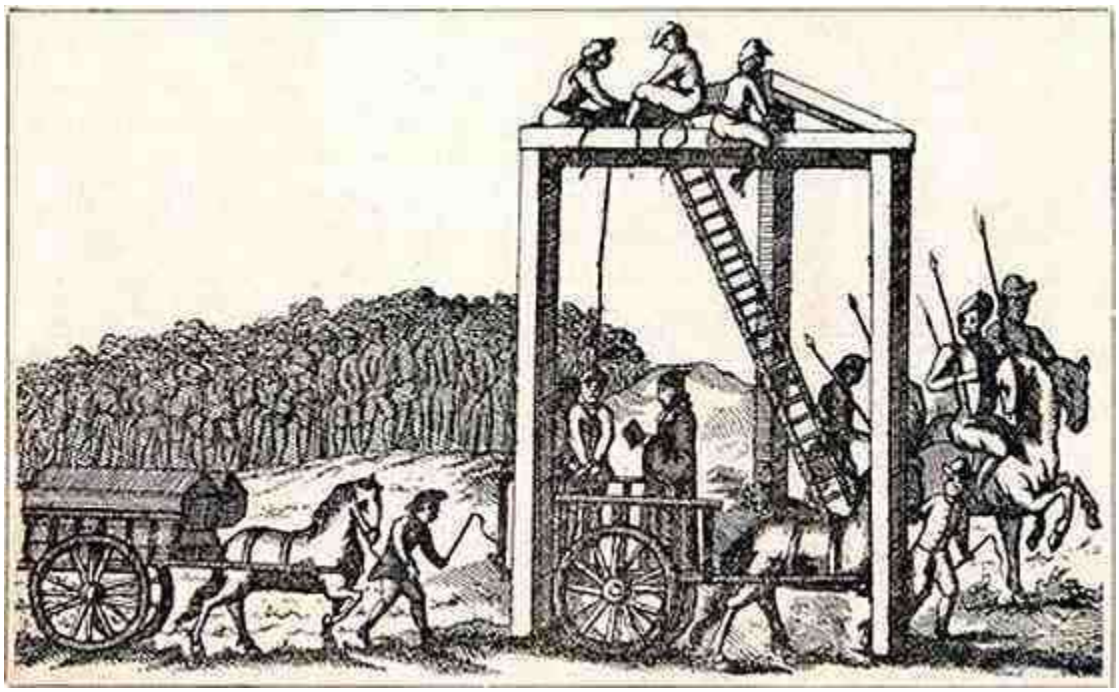
   - The potential for non-cardiogenic pulmonary edema and aspiration injury as well as delayed pneumonia needs to be anticipated.

     Secondary respiratory complications are a major source of delayed morbidity and mortality in near hanging victims. This is a second consideration for early intubation and ventilation in these patients.

   - Non-cardiogenic pulmonary edema will usually respond well to mechanical ventilation and PEEP.

5. Drug ingestion:

   - In cases of self-harm, the potential for co-existent drug ingestion needs to be considered, in particular paracetamol ingestion.



The "Tyburn Tree", 16th Century print.

References

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