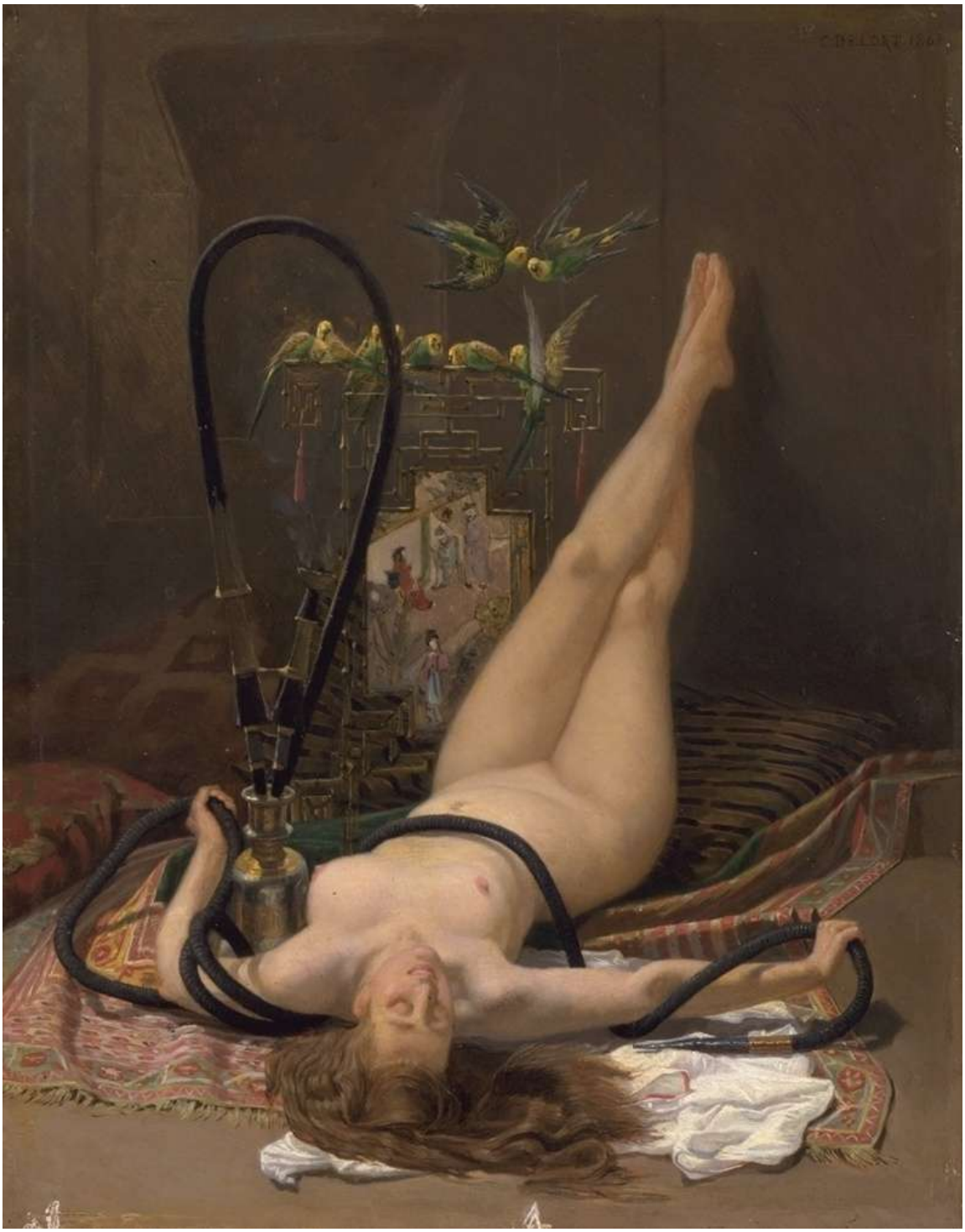
THE NORTHERN HOSPITAL

HEROIN OVERDOSE



"A Voluptuous Smoke", oil on canvas, Charles Edouard Edmond Delort, (1841-1895)

"…Does he (Lord Macaulay) know that the opium smuggled into China comes exclusively from British ports, that is, from Bengal through Bombay? That we require no preventive service to put down this illegal traffic? We have only to stop the sailing of the smuggling vessels…it is a matter

of certainty that if we stopped the exportation of opium from Bengal and broke up the depot at Lintin (near Canton) and checked the cultivation of it in Malawa (an Indian province) and put a moral stigma on it, we should greatly cripple if not extinguish the trade in it. They (the Chinese government) gave you notice to abandon your contraband trade. When they found you would not do so they had the right to drive you from their coasts on account of your obstinacy in persisting with this infamous and atrocious traffic…justice in my opinion, is with them (the Chinese); and whilst they, the Pagans, the semi-civilized barbarians have it on their side, we the enlightened and civilized Christians, are pursuing objects at variance both with justice and with religion…a war more unjust in its origin, a war calculated in its progress to cover this country with a permanent disgrace, I do not know and I have not read of. Now, under the auspices of the noble Lord Macaulay, that flag is become a pirate flag, to protect an infamous traffic…"

William Gladstone, Tory MP, in a speech to the British Parliament, on the eve of the First Opium War 1839.

So screamed out a young Tory MP by the name of William Gladstone, whilst debating Lord Palmerston in the British House of Commons in 1839. Palmerston had embarked on a policy of war with China ostensibly over British "inalienable" rights of trade within the major Chinese cities. The trade with China was lucrative in the extreme, second only to that of the British Raj. The demand for Chinese tea both within Britain and throughout her empire at this time was insatiable and the silver that paid for it was emptying the treasury at an alarming rate. British merchants however had hit upon another solution. Silver aside there was only one other commodity the Chinese were willing to trade in exchange for tea…opium. Cultivated in British India it was being transported across the seas in ever increasing amounts. As this trade flourished the ill effects of the drug began to take an ominous toll on all levels of Chinese society, from the poorest farmers to the highest court officials. It has been estimated that during the Nineteenth century a staggering 20 per cent, possibly higher, of the Chinese population became addicted to it in one form or another resulting in havoc and misery to their society on an unprecedented scale. The addiction of the people grew to such an extent that tea was no longer enough to pay for it; the flow of silver reversed itself flowing out of the Chinese treasury into that of the British.

The Chinese High Commissioner Lin Zexu became so alarmed at what he saw as the disintegration of society around him that he protested to the emperor, "…if we continue to allow this trade to flourish we will find ourselves not only with no soldiers to resist the enemy but also without money to equip the army". The response of the emperor was somewhat lukewarm however to say the least, he was an opium addict himself! Lin decided to appeal directly to Queen Victoria. He wrote,

"…There is a class of evil foreigner that makes opium and brings it for sale, tempting fools to destroy themselves, merely in order to reap profit. Formerly, the number of opium smokers was small, but now the vice has spread far and wide and the poison penetrated deeper and deeper. I am told that in your own country opium smoking is forbidden under severe penalties. This means you are aware of how harmful it is. So long as you do not take it yourselves but continue to make it and tempt the people of China to buy it, you will be showing yourselves careful of your own lives, but careless of the lives of other people…I now give my assurance that we mean to cut off this harmful drug forever"

He then proceeded to confiscate all opium from British merchants in Chinese ports and threatened the death penalty to anyone caught trading in it again. The British merchants were outraged and appealed directly to Lord Palmerston to intervene. To Palmerston the issue was simple, there was no blame on the British for the shameful trade. All blame was to be placed on the uncivilized

Chinese "heathen" who "insisted" on using it! The trade had become simply too lucrative for Britain to give up and besides, he further rationalized, if the British did not supply it, then the Turkish or Persians would. This argument had resonance not only with the majority of the British Parliament but also the British people at large. This attitude had its basis largely in Victorian England's racist ideal as the unparalleled supreme nation on Earth. Britain at this time had achieved a technical, military, artistic and literary ascendancy within the Western world not seen since the early days of imperial Rome. She was well able to carry out her threat of war, even though China was vast in comparison in terms of territories and population. The innate British sense of superiority was fed by common prejudices which turned a blind eye to their own people's substantial addiction, though not on the Chinese scale, to narcotics taken in the from of "laudanum" prescribed largely by the medical profession. The Chinese however smoked opium in "dens" a sinister picture of vice and corruption and degradation. An image fuelled by Victorian artists such as Delort who presented the spectre of the dens as vice ridden places of prostitution, even places of drug facilitated rape of "shanghaied" white women. His infamous "A Voluptuous Smoke" was an enormous shock to Victorian sensibilities.

Britain ultimately went to war in 1839-1842 and again later in the century in 1856-1860. To history these viscous conflicts have been termed the "Opium wars". Armed with the latest steam powered, steel constructed gun boats, the equivalent of nuclear powered ships in 21st century terms, together with early forms of machine guns, and artillery shells that would evolve into the "ordnance" of the Western front in the next century, they inflicted catastrophic defeat onto the medievally armed Chinese who were forced to import opium in vast amounts well into the early 20th century.

The history of the Opium wars has an ironic resonance in the world of the 21st century. The tables now appear somewhat turned with the importation of large amounts of narcotics and other drugs from Asia and South America into the Western world. Debate rages as to the causes and blame for this situation. Western nations insist on the destruction of the sources of supply, whilst those of the third world emphasize the "decadent" West's insatiable appetite for drugs… do these arguments sound familiar?

Of course the old argument of who is to blame, suppliers or users is moot. As human beings and especially as parents in the modern world semantics and politics must be put to one side. Commissioner Lin in fact tried to put semantics and politics to one side in his initial letters to Queen Victoria by appealing to the common "human condition", a universal sense of right and wrong, "…The way of Tao (Heaven) is fairness to all. It does not suffer us to harm others in order to benefit ourselves. Men are alike in this all the world over, that they cherish life and hate what endangers life. Your country lies twenty thousand leagues away, but for all that the way of Heaven holds good for you as for us and your instincts are not different from ours". To the British of the Nineteenth century however it was clearly the "fault" of the "users", yet a lone voice did cry out against the "suppliers" as if to foreshadow the dilemma of the West in the late 20th and early 21st centuries. William Gladstone at the close of the first Opium war recorded in his journal "…I am in dread of the judgement of God upon England for our national iniquity towards China…". Gladstone had a deep and devastating secret unknown to the British public at that time. A secret that gave him more insight than most of his parliamentary colleagues, a secret that transcended any politics and profit making. He had first hand experience of what opium meant on a personal level. His beloved 24 year old sister, Helen was a laudanum addict. Delort's vision hit very close to home, it held another meaning for him.

HEROIN OVERDOSE

Introduction

Heroin is diacetyl-morphine.

In its pure form it is a white powder with a bitter taste.

It is a semisynthetic opioid that was first synthesized in 1874 as a supposedly safer, nonaddictive substitute to morphine. Soon after its introduction, however heroin was realized to be clearly as addictive as morphine.

Heroin today is the major narcotic agent of abuse worldwide.

Its major immediate toxicity relates to respiratory depression.

Pharmacokinetics

The onset of action, peak effects, and duration of action vary with the route of administration.

- Effects begin within several minutes with IV injection.
- Effects begin within 15-30 minutes with IM injection.
- Effects begin within 60 minutes with subcutaneous injection.

The half life is 15-30 minutes.

Heroin is metabolized to 6- monoacetyl-morphine and morphine

Clinical effects of heroin may last approximately 2-4 hours.

Pathophysiology

Acute Complications:

In the setting of acute heroin overdose, complications include:

1. Respiratory depression/ apnea.
2. Airway obstruction with hypoxia.
3. Associated trauma from impaired conscious state
4. Possibility of co-ingestants or adulterants.
5. Problems associated with prolonged unconsciousness.
    - Rhabdomyolysis.

- Hypothermia.

6. Pulmonary complications:

   - Aspiration, most commonly.
   - Rarely an ARDS type picture.

Longer Term Complications:

In the longer term, i.e. not related to acute overdose, but longer term use of heroin:

1. Systemic infections, in particular:

   - Pulmonary infections, especially multiple lung abscesses.
   - Bacterial endocarditis (right sided)
   - Septicemia, especially staphylococcal.

2. Dependence:

   - Physical
   - Psychological

3. Tolerance

Clinical Features

1. Patients are commonly brought to the ED in a variable state of depressed conscious state.

2. Despite direct questioning of a second party, there is often a reluctance to admit that the patient has taken heroin. A high index of suspicion must therefore be maintained.

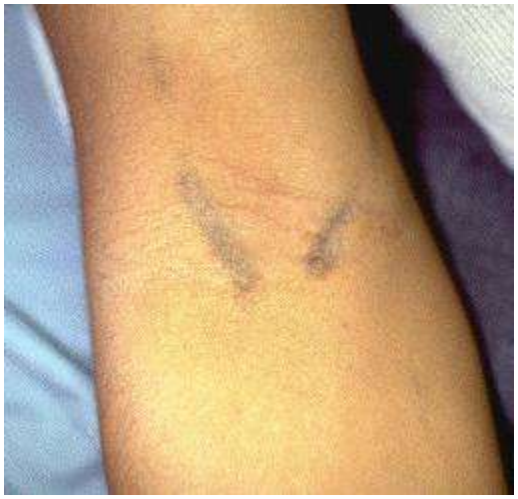
3. Look for confirmatory evidence suggestive of heroin usage.

   The classic features include:

   - **Pinpoint pupils.**
   - **Depressed conscious state.**
   - **Depressed respiratory function.**

     ♥ **Always assess the respiratory rate in the *undisturbed* patient - if the patient is woken up first this can result in a significant *underestimation* of the severity of an opioid toxidrome.**

- **Evidence of "track marks",** most commonly in the cubital fossae as depicted below: they are bruising caused by needle use.



Typical "track marks" in a heroin user.

- **Extensively thrombosed superficial veins**, again these will be caused by extensive needle usage.

Investigations

No routine investigations are necessary in the acute otherwise uncomplicated overdose setting.

Any that are done will depend on the clinical setting and the requirement to rule out other diagnoses or suspected complications of the acute overdose.

The following may need to be considered:

Blood tests:

1. Hypoglycemia (as a differential diagnosis for the altered conscious state).

2. Urine drug screen

    - Though not useful in the acute setting, this may be useful to **document** the fact that a patient has taken narcotics.

3. Consider co-ingestants:

    - Blood alcohol, paracetomol.

4. HIV, hepatitis B and C testing:

    - May be offered to the patient on waking.

CXR

- If aspiration is suspected.

CT scan brain

- CT scan of the brain should always be considered in any patient with an altered conscious state in whom there is not an adequate response to naloxone.

Management

1. The immediate priority is to avoid panic on the part of staff, with the attendant high risk of a needle stick injury to a staff member!

2. ABC issues:

    - The immediate priority to the patient is attention to ABC issues.

    - **Patients with pure heroin overdose respond well to supportive bag-valve-mask ventilation measures. This should be done while naloxone is being prepared.**

3. Before giving the naloxone ensure the patient is adequately restrained, they can be highly agitated on waking, and again there will be a high risk of needle stick injury to staff members.

4. Naloxone, (trade name Narcan)

    The need for naloxone will be determined by how unwell the patient is.

    It must be given in cases of severe depression of consciousness and/ or respiratory status.

    In some cases however where patients are only mildly to moderately affected, (ie the patient is not deeply comatose or respiratory depressed) expectant management with **close** observation without the use of naloxone is probably best. This allows time for the body's natural clearing of the drug. If naloxone is given in these cases a common scenario is for the patient to become fully awake and if aggressive will be extremely difficult to manage thereafter. They may also wish to discharge themselves with the attendant risks of a still drug affected patient in the community and the risk of "re-narcotization" once the effects of the naloxone wears off.

    When giving naloxone:

    - It is a good idea to give 0.8mg of naloxone IM first (to ensure a longer acting effect should the patient wish to discharge him/herself against medical advice.)

    - Follow this with naloxone 0.8 mg IV.

IV access can be problematic in a semi-combative patient. It is essential to have the patient adequately restrained (one staff member / security staff per limb is the recommended minimum safe requirement) if IV access is to be attempted.

A combative patient will present a substantial needle stick injury risk to staff. If IV access cannot easily or safely be obtained, then IM naloxone is just as good, it will simply take longer to act.

- Note that up to 10 mg of naloxone may be given.
- **Continuous IV infusions of naloxone** are also useful, for those requiring repeated doing, though this is rarely necessary.
- Some opioid agents such as codeine or dextropropoxephene are more difficult to reverse with naloxone and will require relatively larger doses.
- **Nebulized naloxone** is a further alternative when IV access is problematic.

See also Opioid Overdose Document.

5. If there is a failure of response to naloxone, think of:
   - Possibility of underdosing with naloxone
   - Possibility of co-ingestants.
   - Possibility of secondary cerebral hypoxia and / or traumatic head injury.
   - Other alternative diagnoses
6. Patient orientation
   - The patient will be confused / disoriented on awakening. It is important to reassure and orientate the patient quickly.
   - Be prepared for patient agitation/ aggression on awakening.
7. Ideally on waking the following should then occur:
   - Keep the patient for several hours observation, (effect of heroin may last longer than that of the naloxone)
   - Offer the patient HIV, hepatitis B and C testing.
   - Offer the patient referral to a drug and alcohol counseling service.
8. Unfortunately the more common scenario on awakening is that the patient becomes aggressive and wishes to discharge him / herself against medical advice.
   - Document in the notes that the patient has done this.

- There is no current legal requirement for mandatory reporting of heroin users to the police.

  There may be "duty of care" issues however, that might need to be considered. For example concerns that a patient may wish to drive home immediately following resuscitation. It is illegal to drive while under the influence of any drug, including heroin and so in this case a police report may need to be made.

- Child protection services will need to be notified if issues of child safety are involved.

References

1. Emergency Medicine Therapeutic Guidelines 1st ed 2008

2. Opioid overdose in L Murray et al. Toxicology Handbook 2nd ed 2011.

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