

Plastic surgery

Sarah Pape, Navin Singh and Paul Manson

-
- 1 Hoarse voice after burn injury – airway is at risk.
 - 2 Facial muscle stiffness following a recent wound may be tetanus.
 - 3 Light-headedness and racing heartbeat after a scalp laceration – think of blood loss.
 - 4 A sick, pyrexial patient with cellulitis could have life-threatening necrotising fasciitis.
 - 5 An unwell, feverish child with a minor burn could have toxic shock syndrome.
 - 6 Numbness, tingling, weakness or poor circulation after a penetrating wound suggest nerve, tendon or vessel injury.
 - 7 Following surgery under local anaesthesia, perioral tingling, metallic taste and confusion may signal lidocaine toxicity.
 - 8 A painful, swollen stiff digit or hand after a high-pressure injection injury needs urgent exploration.
 - 9 Cellulitis after a cut in an aquatic environment can be devastating.
 - 10 Malocclusion of teeth after facial trauma – suspect facial fracture.
-

NOTES

1 Airway burn

Hoarseness of the voice is an early symptom of laryngeal oedema. If the hoarseness is ignored, complete upper airway obstruction may follow. Patients with facial burns have a high incidence of airway burns due to the inhalation of hot gas or liquid. Closed space burns (car fire, house fire) are high risk for smoke inhalation. Associated signs include singed nasal hairs and carbonaceous sputum. Treatment is immediate control of the airway with prophylactic intubation while still feasible.

Action: Administer humidified, high-flow oxygen through a facemask with a reservoir bag. Refer immediately to the emergency department for the attention of a senior anaesthetist.

2 Tetanus

Stiffness of facial, especially jaw, muscles is an early symptom of tetanus ('lockjaw'). In the developed world, the symptoms may be mild due to partial immunity. They come on 2–20 days after skin injury from a wound, burn or surgery, often associated with dirt, debris or agrarian environments. Full-blown tetanus progresses from facial stiffness to spasticity of skeletal muscles, accompanied by dysphagia, neck stiffness, rigidity of the abdominal muscles and difficulty in breathing. The patient may develop painful muscle spasms provoked by touch, sound, light or emotion. Consciousness is not impaired. Autonomic symptoms include tachycardia, tachypnoea, profuse sweating and cardiovascular collapse, which may be sudden and fatal.

Action: Refer immediately to an intensive care unit (ICU). Give IM human tetanus immunoglobulin and antitetanus toxoid (at different sites).

3 Blood loss from scalp laceration

A scalp laceration can often have significant associated blood loss. As much as 1–2 units of blood can be lost at the site of a

large scalp laceration, and more is lost during transport and evaluation at the emergency department. Light-headedness or postural hypotension may indicate hypovolaemic shock and blood-loss anaemia. With significant head trauma and intracranial injury, the hypotension may be due to neurogenic shock, but this is usually rare.

Action: Check pulse and BP (lying and standing). Check FBC. Replace fluids and transfuse if necessary.

4 Necrotising fasciitis

Necrotising fasciitis usually has an insidious onset, with localised pain and swelling of the soft tissues, followed by mild cellulitis of the overlying skin. It is commoner in older people, diabetics and intravenous drug users. Infection of the soft tissue spreads along fascial planes over a few hours or days. Muscle necrosis may occur. The patient becomes increasingly unwell, with fever, malaise and cardiovascular collapse. The mortality rate is 50%. The infection is usually due to a combination of a Gram-positive coccus and a Gram-negative bacillus. The early stages of the disease may be indistinguishable from gas gangrene. The patient needs early, radical excision of all the necrotic tissues. If the patient survives, he or she may require major reconstructive surgery.

Action: Refer immediately to plastic surgery in a hospital with an ICU. Commence IV fluids and give high-dose, broad-spectrum antibiotics intravenously. If gas gangrene is suspected, include high-dose penicillin.

5 Toxic shock syndrome

Many young children with minor burns have low-grade pyrexia and feel generally unwell and grumpy. These symptoms alone are not a cause for concern. However, such children can deteriorate very rapidly with high fever, lethargy, diarrhoea, vomiting, diffuse macular rash and cardiovascular collapse. The usual cause is a toxin-producing *Staphylococcus aureus*.

Action: Refer immediately to a paediatric burn centre or paediatric ICU. Commence IV or intra-osseous fluid resuscitation and IV antibiotics (flucloxacillin or clindamycin). Give fresh frozen plasma (FFP) (it contains the antistaphylococcal antibodies that the child lacks).

6 Penetrating injury

Numbness, tingling, weakness or poor circulation after a penetrating wound suggests that there is injury to nerves, tendons or vessels. Children and intoxicated patients may not be able to describe these symptoms clearly, so have a high degree of suspicion. A spike of glass can cause a minor skin wound with severe disruption to deeper structures. Incomplete nerve injuries may produce a confusing pattern of sensory and motor loss. All penetrating wounds with sensory, circulatory or motor loss need to be surgically explored.

Action: Refer immediately to a hand surgeon or to plastic surgery.

7 Lidocaine toxicity

Lidocaine (lignocaine) is used as a local anaesthetic in a wide variety of procedures in outpatient and primary care settings. Toxicity is rare but potentially fatal. Early symptoms include perioral tingling, metallic taste in the mouth, and confusion or agitation. This may proceed to seizures, cardiac arrhythmias and death. Treatment involves benzodiazepines to lower seizure potential, possible intubation, and intensive care.

Action: Refer immediately to the emergency department.

8 High-pressure injection injury

High-pressure injection of air, oil or paint into a digit may cause a trivial entry wound but lead to severe disability and amputation. The point of entry is usually the tip of the thumb or index finger of the non-dominant hand. The wound feels a little uncomfortable at first but becomes increasingly painful over a few hours. The injected substance tracks through the

tissue planes and causes fat necrosis. X-rays may reveal air or radio-opaque material in the soft tissues. Early, radical debridement, with possible amputation and reconstruction, may be necessary.

Action: Refer immediately to a hand surgeon.

9 Cellulitis from aquatic organisms

Even relatively innocuous scrapes or cuts in an aquatic environment can develop aggressive infections that need treatment with operative debridement and IV antibiotics. *Vibrio vulnificus* is an aggressive, life-threatening organism responsible for such infections.

Action: Refer immediately to plastic surgery.

10 Malocclusion after facial trauma

Malocclusion of the teeth after facial trauma is a very sensitive symptom of maxillary or mandibular fractures. CT scanning is used for evaluation.

Action: Refer urgently to plastic or maxillofacial surgery.