

SEVERE TETANUS

Severe tetanus is a life threatening neurotoxic disease caused by *Clostridium tetani*, characterised by uncontrolled muscle rigidity, painful spasms, and autonomic instability. Mortality remains high without aggressive supportive and airway focused care.

ED priorities:

- Early recognition
- Prevent airway catastrophe
- Control muscle spasms
- Minimise stimulation
- Neutralise circulating toxin
- Treat infection source and complications

RECOGNITION

KEY CLINICAL FEATURES

- Trismus (lockjaw)
- Generalised muscle rigidity
- Painful, stimulus induced spasms
- Dysphagia
- Risus sardonius (late)

SEVERE / LIFE THREATENING FEATURES

- Laryngospasm
- Apnoea during spasms
- Profound autonomic instability:
 - Hypertension / hypotension
 - Tachycardia / bradycardia
 - Hyperthermia
- Recurrent spasms with minimal stimulation

Mental status is usually **preserved**, agitation is physiological, not psychiatric.

PATHOPHYSIOLOGY

- Tetanospasmin blocks inhibitory neurotransmission (GABA, glycine)
- Results in unopposed motor neuron firing
- Leads to:
 - Sustained muscle contraction
 - Autonomic dysfunction
 - Respiratory compromise

Antibiotics do not reverse toxin already bound to nervous tissue.

IMMEDIATE ED PRIORITIES

1. **Low stimulus environment**
2. **Early airway planning**
3. **Spasm control**
4. **Toxin neutralisation**
5. **Source control**

Do not wait until airway collapse to escalate.

ENVIRONMENTAL CONTROL (FIRST INTERVENTION)

- Quiet, darkened room
- Minimal handling
- Cluster care
- Avoid unnecessary examinations

Minor stimuli can precipitate fatal laryngospasm.

AIRWAY & RESPIRATORY MANAGEMENT

- High risk of sudden airway obstruction
- Low threshold for early intubation in severe disease
- Anticipate difficult airway:
 - Trismus • Rigidity • Laryngospasm

If intubation required:

- Experienced operator
- Deep sedation
- Paralysis often necessary

PHARMACOLOGICAL MANAGEMENT

A TOXIN NEUTRALISATION

Tetanus immunoglobulin (TIG):

- Neutralises unbound toxin only
- Give ASAP
- Infiltrate some dose around wound if feasible

Vaccination status is irrelevant during acute disease — give TIG regardless.

B ANTIBIOTICS

- Metronidazole preferred
- Reduces further toxin production
- Penicillin acceptable alternative if no option

C SPASTICITY CONTROL (CORNERSTONE)

Benzodiazepines = first line

- High dose, repeated dosing often required
- Reduces rigidity, spasms, and anxiety

Spasm control is **life preserving**, not optional.

D MAGNESIUM

- Useful for:
 - Spasm control • Autonomic instability
- Reduces catecholamine release
- Requires cardiac and respiratory monitoring

AUTONOMIC DYSFUNCTION

Manifestations:

- Labile BP
- Arrhythmias
- Hyperthermia
- Sweating

Management:

- Magnesium
- Careful beta blockade (specialist guided)
- Avoid abrupt haemodynamic shifts

WOUND MANAGEMENT

- Identify portal of entry
- **Debridement**
- Remove necrotic tissue

This reduces further toxin production but **does not treat established disease**.

IMMUNISATION

- Acute tetanus **does NOT confer immunity**
- Vaccination should be started once stabilised

WHAT TO AVOID (COMMON, DANGEROUS ERRORS)

- Excess stimulation
- Delayed airway control
- Under dosing benzodiazepines
- Assuming antibiotics alone are adequate
- Treating agitation without recognising tetanus



CHECKLIST

SEVERE TETANUS

IMMEDIATE ASSESSMENT (ABCDE)

Airway

- Assess for trismus, stridor, laryngospasm
- Prepare for difficult airway
- Early intubation if severe spasms or airway compromise

Breathing

- Oxygen as needed
- Monitor for apnoea during spasms

Circulation

- IV access x2
- Continuous ECG and BP monitoring

Disability

- Mental status (usually preserved)
- Observe spasm frequency and triggers

Exposure

- Examine for wounds / entry site
- Minimise handling

ENVIRONMENTAL CONTROL

- Quiet, dark room
- Minimal stimulation
- Cluster nursing care

IMMEDIATE TREATMENT

- Tetanus immunoglobulin given ASAP
- Metronidazole started
- High dose benzodiazepines for spasm control

SPASTICITY & AUTONOMIC CONTROL

- Benzodiazepines titrated to effect
- Magnesium infusion considered
- Monitor respiration and BP closely

DISPOSITION

- Severe tetanus requires **ICU level care**
- High mortality without invasive ventilation and prolonged support
- Early transfer if ICU unavailable

AIRWAY MANAGEMENT

- Low threshold for early intubation
- Experienced operator for airway
- Paralysis if required

WOUND MANAGEMENT

- Identify source wound
- Debridement performed if feasible

AVOID

- Excess noise or stimulation
- Delayed airway protection
- Under treating spasms
- Relying on antibiotics alone

DISPOSITION

- ICU admission
- Early critical care + infectious disease input
- Arrange transfer if ICU not available
- Plan vaccination after stabilisation