

SECOND EDITION

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*The New Aird's*  
COMPANION  
IN SURGICAL  
STUDIES

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**Table 53.1** Gustilo and Anderson's classification of open fractures which was based on a large series of tibial fractures

Gustilo and Anderson Type	Soft tissue injury	Bony injury
0	Skin intact	
I	Less than 1 cm laceration and clean	Any except segmental fractures
II	More than 1 cm laceration. No extensive soft tissue damage, flaps or avulsions	Any except segmental fractures
IIIa	Adequate soft tissue coverage despite extensive laceration or flaps, or high-energy trauma irrespective of size of wound	Any except segmental fractures
IIIb	Extensive soft tissue injury loss with periosteal stripping and bone exposure.	Any
IIIc	Usually associated with massive contamination Arterial injury requiring repair.	Any

## Compound fractures

All compound wounds must be treated aggressively.<sup>15</sup> The Gustilo classification was specifically devised for the management of tibial fractures (Table 53.1). It is often applied to any compound fracture, dividing open wounds into three 'types'.<sup>16-18</sup> The revised Gustilo classification takes into account the mechanism of injury, the degree of soft tissue damage, the fracture configuration and wound contamination.<sup>19</sup> External fixation is the mainstay of management of compound fractures in the lower limb because of the reluctance to leave foreign material within a contaminated wound. Metal, like any inert material, can act as a nidus for bacterial infection. Compound fractures tend to be as a result of high-energy injuries and are associated with much periosteal stripping. Therefore, they are often complicated by delayed union as well as by deep infection.<sup>20</sup>

The treatment of compound wounds has been considered (cf. Ch. 50). Operative management should never be delayed more than 6 hours. In the leg a tourniquet may be applied but should not be used unless uncontrolled haemorrhage is discovered. Two to ten litres of saline must be used to irrigate the often larger wounds of the lower limb. In these circumstances the risk of cross-infection of the patient from bacterial ingress through wet drapes, and of the theatre staff from viral infection, necessitates use of universal precautions and modern drapes which entrap blood and irrigation fluids (Fig. 53.2).

The patient's lower limb should be elevated in the postoperative period until the skin has healed in order to reduce the risk of tissue fluid leakage on mobilization and subsequent infection. Patients should be encouraged to exercise their lower limb during this period of elevation. A fixed plantigrade foot should be prevented by the early use of a backslab or anti-foot-drop orthosis.

## Infection

Both superficial and deep infection can complicate a fracture. Superficial infection is commonly a postoperative complication related to the general condition of the patient and the skin closure technique. In most series deep infection (osteomyelitis) is a rare event following fractures of the leg but is still most common in patients with a compound fracture. To avoid infection in the leg most practices employ modern compound fracture management and have abandoned using plaster casts with transfixing pins.<sup>21,22</sup>



**Fig. 53.2** Use of an inflatable surgical tray to reduce the risks of exposure to theatre staff to 'substances hazardous to health' as preached by COSHH regulations.

## REFERENCES

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