



Fig. 1. Illustrations of (A) Hypertrophic; (B) Atrophic.

(Tosounidisa et al. 2009). There are two main types of non-union fractures: (1) hypertrophic and (2) atrophic (Fig. 1) that are routinely classified according to their radiological appearance and lack of evidence of progression in fracture healing six months post-injury (Verdonk et al. 2015).

This complication may result from inadequate fixation (too rigid or too loose) in long bone fractures or may be attributed to other general risk factors, e.g., age, gender, history of osteoporosis, smoking, diabetes, cachexia, infection and the limited impacted of some medications such as non-steroidal anti-inflammatory drugs (NSAIDs) and steroids.

Bone diseases

There are many diseases that can affect the structure and composition of bone a few of which include: bone cancer, osteogenesis imperfecta, Rickets and osteoporosis (MedlinePlus 2016). All these diseases result in a reduction in bone density that makes the bone weaker and brittle (MedlinePlus 2016). Osteoporosis is becoming more common as the age expectation of the populace increases and with it an increase in treatment has occurred and lead to the advancements of these treatments.

Autografts

This method is currently the most favoured for treatment as it has the best clinical outcome due to the fact that the autologous bone integrates reliably with the host bone and lacks immune and disease related complications associated with allografts (Stevens 2008). This method is used to promote bone repair after severe non-union fractures, spinal fusions, joint revisions and to fill bone defects left by the removal of tumors and involves the harvesting of bone from a non-load-bearing site in the patient and