



POSNA

The Core Curriculum

Intramembranous bone formation

Objectives

1. Define intramembranous bone formation
2. Describe intramembranous bone formation
3. List sites of intramembranous bone formation

Discussion

Intramembranous bone formation occurs at the periosteal surfaces of all bones and in parts of the skull, pelvis, scapula, and clavicles. Osteoblasts form subperiosteally, or when mesenchymal cells are induced to differentiate into osteoblasts. The osteoblasts form a matrix on the existing bony scaffold which calcifies and then ossifies, just as with endochondral ossification. The resulting growth is appositional, however, with intramembranous ossification rather than longitudinal. Osteoclastic activity on the deep side of the cortex remodels the bone with growth.

References

1. Gamble JG. Development and maturation of the neuromusculoskeletal system. In: Morrissy RT, Weinstein SL, editors. Pediatric Orthopaedics. Philadelphia: Lippincott-Raven; 1996. p. 1-24.
2. Iannotti JP, Goldstein S, Kuhn J, Lipiello L, Kaplan FS, Zaleske DJ. The formation and growth of skeletal tissue. In: Buckwalter JA, Einhorn TA, Simon SR, editors. Orthopaedic Basic Science. Biology and Biomechanics of the Musculoskeletal System: American Academy of Orthopaedic Surgeons; 2000.