

Desmogenous ossification

Desmogenous ossification takes place by the new formation of bone beams directly **in the ligament** - endesmally.

Progress

Ossification begins in the middle of the future bone with **thickening** of the mesenchyme. In the place of thickening, the cells become rounded, differentiate their organelle system and become osteoprogenitor cells.

Differentiating **vascular buds** penetrate between them. Along the capillaries, osteoprogenitor cells form a group of osteoblasts, which gradually differentiate and proliferate. Osteoblasts synthesize bone mass (matrix), store inorganic substances in it and create islands of **fibrous bone** with the first bone beams, which represent the ossification center.

The laminae **enlarge** apically, osteoblasts sit in a row on the surface of the laminae and form **another matrix** (epithelioid appearance of osteoblasts). Converging trabeculae and islets of bone together with blood vessels form the spongy structure of primary bone. The ossification center enlarges and expands towards the periphery (circumference) of the future bone until it **replaces** the original ligament.

The surface layers of the ligament, which do not undergo ossification, form the basis of the periosteum. **New bone formation** takes place in the periosteum throughout life, most intensively during the growth period. This appositional growth is supplemented by resorption to maintain the shapes and proportions.

The fibrous bone formed first is gradually rebuilt into **lamellar** bone.

Examples

The bones of the cranial vault, the bones of the facial part of the skull and the clavicle ossify desmogenously.

Links

Related articles

- Bone
- Chondrogenic ossification
- Bone growth and healing

References

- ČIHÁK, Radomír – GRIM, Miloš. *Anatomy*. 2. edition. Praha : Grada Publishing, 2002. 470 pp. 1; ISBN 80-7169-970-5.
- GRIM, Miloš – DRUGA, Rastislav. *Fundamentals of anatomy 1*. 1. edition. Prague : Galén, 2006. 105 pp. ISBN 80-7262-112-2.