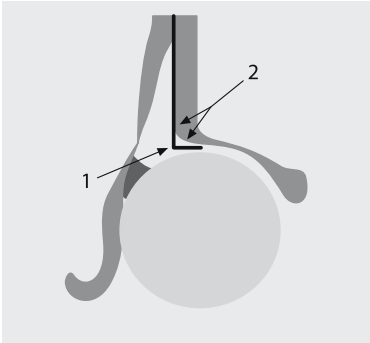


6 Ultrasound Classification



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6.1 Description

The structures of the acetabulum, which are of importance for ultrasound, are described. Over the course of time, some standardized terms have proved to be good for this description. It must, however, be understood that a description is only a subjective impression, and therefore cannot replace an objective, reproducible, quantifiable measurement technique. Nevertheless, the description should continue to be taught and learnt during training courses. This way the observer learns to analyse the hip joint systematically and is forced to put the shape and structure of the three essentials – bony acetabular roof, bony rim and the cartilaginous acetabular roof – into specific categories which finally leads to a diagnosis. As the description itself is not sufficient for diagnosis but is complimented by an ever-improving measurement technique, the descriptive terms have been simplified and are summarised in Table 6.1.

6.1.1 Basic Terms and Possible Variations

- The terms used for the bony socket: “good” (type I), “deficient” (type II) and “poor” (decentred joints).
- Deficient is used for type II joints. A possible alternative is the term “adequate”. The term “deficient” is used when the bony socket is not developed well enough with respect to the age of the baby. This is the case in type IIa(-), type IIb and type IIc hips.
- The term “adequate” is also used in type II joints; however, only when the bony development is appropriate for the age as in type IIa(+) hips.

For the bony rim the terms “angular” (type I) “rounded” (type II) and “flat” (decentred joints)

have been chosen. A variation of the angular bony rim is the “blunt” bony rim (Fig. 6.1a–c); these contours of the bony rim can also be observed on x-rays. Two different joints with almost the same AC angle can show different contours to the bony rim: one may be angular whilst the other is rather blunt or slightly rounded.

The cartilaginous acetabular roof can be either “covering” (covering the femoral head) or pushed aside (“displaced”). The term “covering” is meant for centred hips and means that the cartilaginous acetabular roof overlaps the femoral head and helps to hold it in the socket.

The term “displaced” is synonymous with a decentred hip joint. The femoral head has deformed the cartilaginous acetabular roof. If the term “displaced” is used it must refer to a decentred joint. Further differentiation is necessary:

- Pushed cranially with no echogenicity in the hyaline acetabular roof = type IIIa.
- Pushed cranially – echogenicity in the hyaline acetabular roof (disordered structure) = type IIIb (rarity!).
- Pushed caudally = type IV.

Descriptive examples:

1. The bony socket is good, the bony rim blunt, the cartilaginous acetabular roof is covering. Diagnosis = type I.
2. The bony socket is poor, the bony rim is flattened, the cartilaginous acetabular roof is pushed cranially with echoes. Diagnosis = type IIIb.
3. The bony socket is good, the bony rim rounded, the cartilaginous acetabular roof is pushed caudally. This description is impossible because this kind of hip joint cannot exist. The term “good” is used for type I and the term “displaced” is used for decentred joints. These two terms contradict each other. Furthermore, the femoral head would not normally dislocate out of a well-developed bony socket (for exception, see Sect. 5.1).