

Age-related peculiarities of osseous pelvis in elk cows

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The osseous pelvis of 32 variously aged female elks were studied by preparation, pelvimetry, X-rays, and biological maceration. The teeth served as the indicator of the age of the animals. The pelves were divided into four groups: calves (0.5-year-old), mating-aged heifers (1.5-year-old), primiparae (2.5- to 3.5-year-old) and adult animals (4.5-years-old or older).

The mean ages of the primiparous and pluriparous elk cows were 3.0 and 6.4 years, respectively. The oldest cow was 12 years old.



Figure 1. The acetabulum of the 0,5 year old female elk
1 – os ischii, 2 – os ilium, 3 – os pubis.

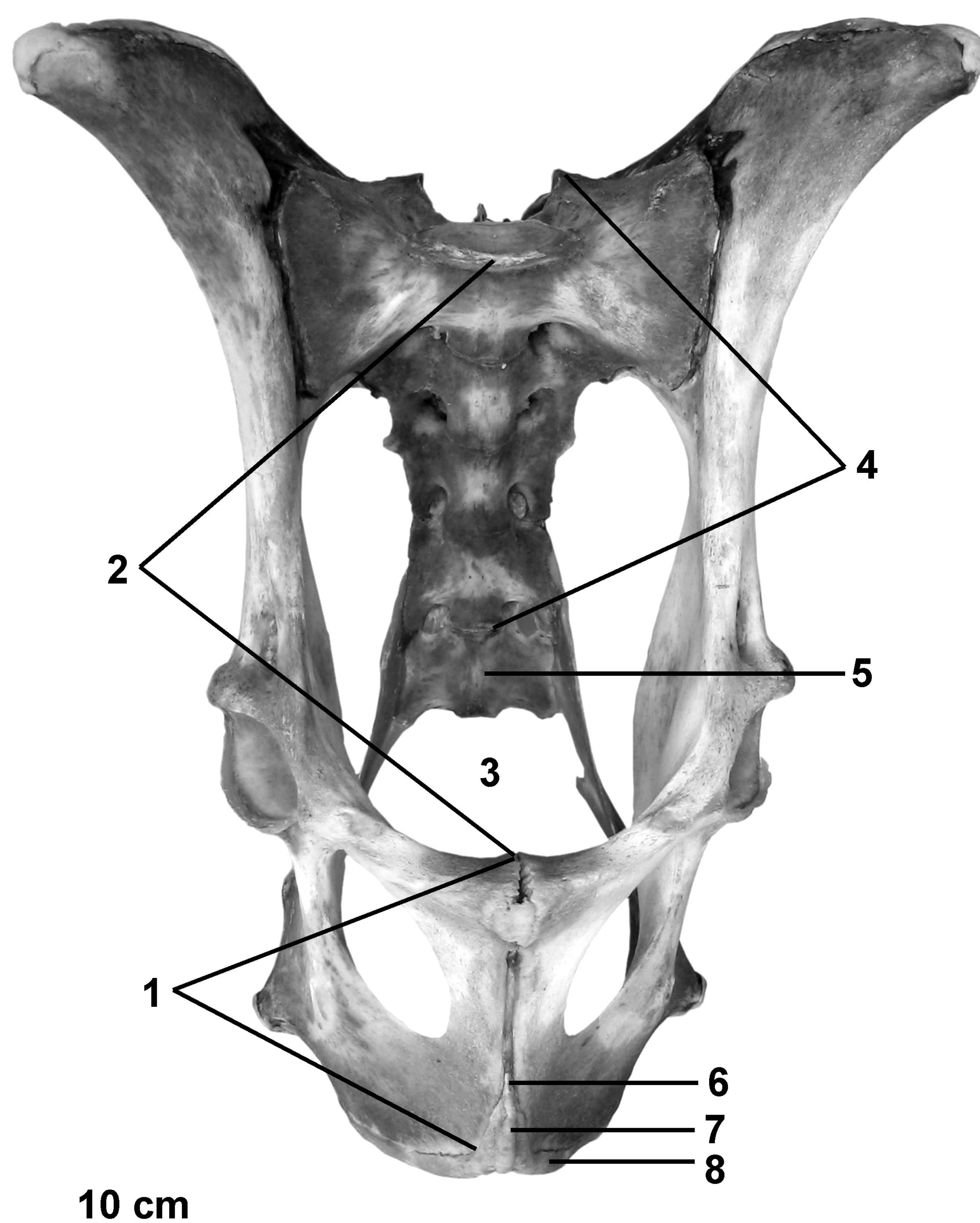


Figure 2. The cranioventral view of the pelvis of the 6 years old elk cow
1 – symphysis pelvina, 2 – apertura pelvis cranialis,
3 – apertura pelvis caudalis, 4 – os sacrum, 5 – vertebra caudalis I, 6 – ramus cranialis ossis interischidici, 7 – eminentia symphysialis ossis interischidici, 8 – ramus caudalis ossis interischidici.

The pelvis of a European elk (*Alces alces*) is narrow and small by comparison with the front of the chest. Because of the slanting position of the ilium and the strongly projecting coxal tubers it is stretched out in the cranial direction.

The sacrum is short and the pelvic axis runs mostly straight.

The ratio of the front and back of the acetabulum is 1.3:1. In the cranial part of the pelvic floor the pubes have receded to an extent that the arched pubic pecten may be positioned on the same line with the acetabular notch. The ischial plate has a large surface area; its width exceeds considerably the length, and there is an acute angle between the plates. There is an interischial bone (*os interischidicum*) between the ischia. The pelvic apertures and cavity are longitudinally oval.

The pelvic floor is wide and flat cranially and narrows to some extent caudally; the latter rises in relation to the dorsal level on average 22°.

The growth of the pelvis is fastest until reaching the mating age, and several measurements reach the corresponding adult size. With age the pubic pecten develops ventrally into a wider groove; the ventral pubic tubercle shifts cranially, and the pubic symphysis flattens dorsally.

The cranial branch of the interischial bone grows longer and reaches the caudal third of the obturator foramen. The pelvic cavity is narrowest at the sciatic bodies and the sciatic crests. Ossification of the pelvic symphysis begins at the age of three years from the ischial symphysis and then slows down for several years.

Although the group of adult (aged 4.5 years and older) cows is heterogeneous, some changes are similar – structures have developed for the attachment of muscles and tendons, the dorsal pubic tubercle has become reduced, the pelvic apertures are much wider and higher than those of primiparous cows, and in pluriparous cows the transverse measurements of the apertures have become almost equal.

The middle section of the pelvic symphysis and the iliosacral joint are unossified.

The pelves of primiparous and pluriparous elk cows can be distinguished not by the general pelvic measurements but by the shape of the pubic symphysis, pubic pecten, and the interischial bone, as well as by the degree of ossification of the tubers and the pelvic symphysis.

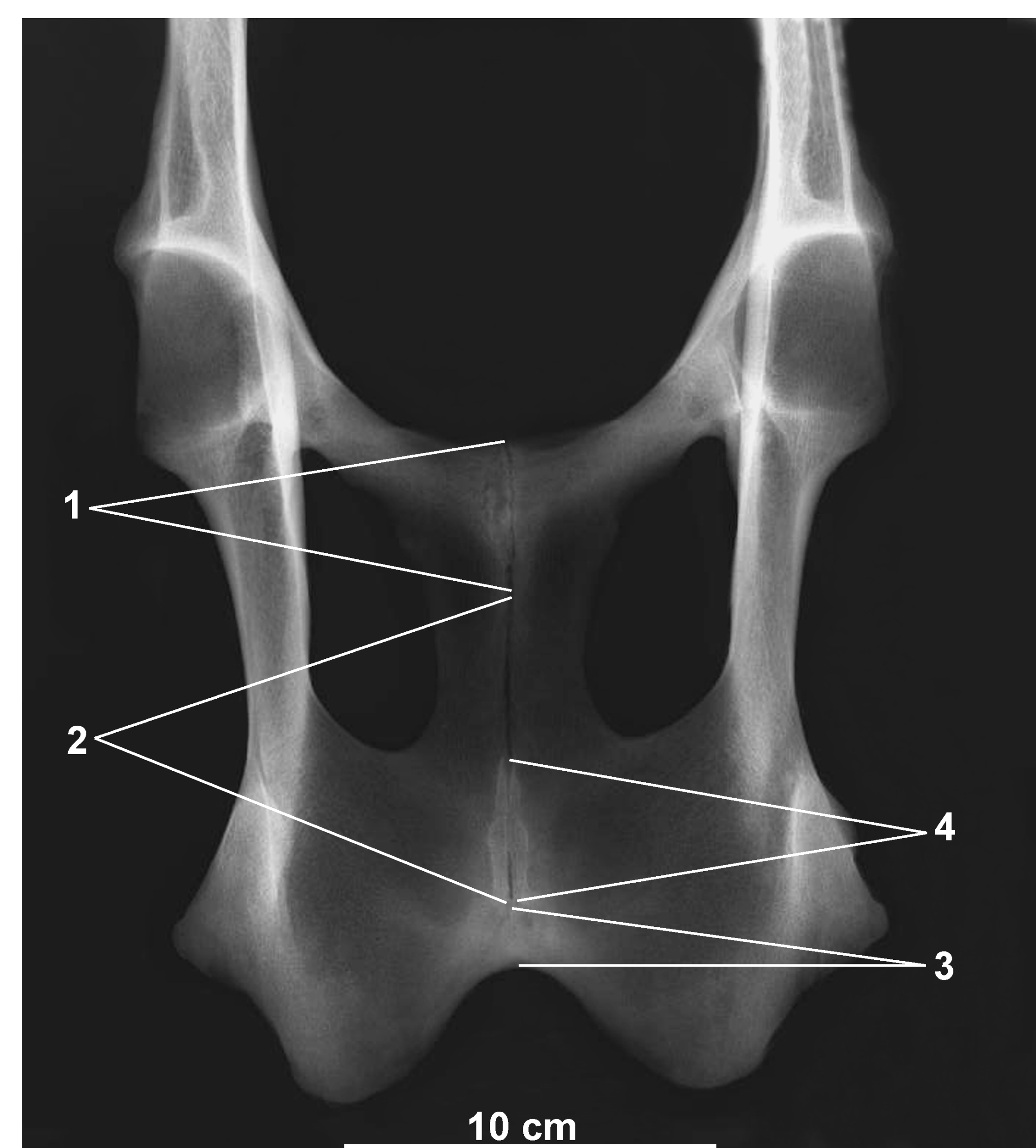


Figure 3. X-ray images of the pelvic floor of a 7.5-year-old pluriparous elk cow
1 – symphysis pubica, 2 – symphysis ischiadica, 3 – corpus ossis interischidici, 4 – ramus cranialis ossis interischidici.