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Beaks and peaks in adult skeleton, Part I and II, p. 62-63
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COMMENTARY

"Beaks and peaks in adult skeleton, Part I and II"

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This set of 2 articles by Akkaya Z. et al. [1, 2] emphasises the importance of correct characterisation of bony excrescences in the adult skeleton.

These findings are not uncommon in daily radiological practice and comprise a whole spectrum of lesions or pseudo-lesions. They are often incidental findings on plain radiographs performed for other clinical indications and may represent variations of the normal anatomy and thus are mostly clinically insignificant. However, they are sometimes a radiological challenge, as they may confuse the young or less-experienced radiologist. It is of utmost importance that these findings should not be interpreted as ominous lesions such as potentially malignant bone tumours. The imaging report should unambiguously define the true nature by naming it. If not, the patient may be subjected to further unnecessary treatment, invasive diagnostic tests (e.g. biopsy) and potentially harmful treatment. In addition, as the true nature of these asymptomatic incidental findings may be characterised solely by plain films in most cases, requesting additional imaging will unnecessarily increase costs to society.

Some variants may cause clinical symptoms. The radiologist should be aware of the potential pathogenic effect of these anatomic variations and inform the referring clinician appropriately. In contradistinction to asymptomatic variants, additional imaging other than plain radiography may be warranted for further clarification of the origin of the symptomatology. A supracondylar process of the humerus is a vestigial remnant of climbing animals that rarely persists in humans. An associated ligament of Struthers connects the tip of this process with the medial epicondyle and creates a tunnel in which either the median nerve or the brachial artery may become compressed. Ultrasound or MRI may unravel the precise anatomical base of the symptoms [3, 4]. At the ankle joint, a hypertrophic peroneal tubercle may be associated with tendinopathy of the peroneal tendons [5]. MRI is very useful to document the grade of peroneal tendinopathy and adjacent frictional bone marrow oedema at the calcaneus.

Other bony excrescences are of degenerative, inflammatory or posttraumatic aetiology. An example of the latter category is an old apophyseal avulsion fracture of the pelvis with incomplete remodelling. The resulting excrescence should not be misinterpreted as a benign (e.g. cartilaginous exostosis) or even malignant bone tumour (e.g. surface osteosarcoma). The history of previous trauma and knowledge of the sports activity of the patient (soccer players, gymnasts etc) are important clues to the correct diagnosis [6]. It is of utmost importance that radiologists should have access to all clinical information when interpreting imaging studies and have the opportunity to examine the patient themselves. Clinical history of trauma, knowledge of underlying or concomitant disease (e.g. spondyloarthropathy) and the age of the patient are important non-radiological prerequisites for a confident interpretation. Meticulous analysis of the lo-

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cation of the excrescence, morphology (e.g. broad-based versus pointy; candle wax dripping in melorheostosis), orientation (an osteophyte points away from the joint whereas a supracondylar spur points towards the joint), solitary occurrence versus multiplicity (e.g. presence of multiple osteomas in Gardner syndrome), and smooth versus irregular contour and absence of aggressivity in benign excrescences are key features for a correct characterisation.

A genetic aetiology of the excrescences such as in Hereditary Multiple Exostoses Syndrome is rarer, but these entities are less commonly misdiagnosed because of their typical radiological presentation.

Overall, the radiologist plays a pivotal role in the correct diagnosis of these *beaks and peaks* of the skeleton, as further management of the patient will heavily rely on the accuracy of the radiological report. Therefore, I recommend to all radiologists - especially the young and less-experienced ones - to go through the papers carefully. Supervisors should mark them as "must-reads" in the electronic library of their Department of Radiology. Referring clinicians and patients will benefit from it.

The authors of this pictorial essay should be congratulated on this excellent and well-written papers, which are of high educational value. I enjoyed reading them and I wish you a very pleasant reading too. **R**

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