

SUPRACONDYLAR OSTEOCHONDROMA IN A BLACK SOUTH AFRICAN POPULATION

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ABSTRACT

Osteochondroma is a condition characterized by a benign outgrowth of bone on the surface of another bone. The present study reports the presence of osteochondroma in the supracondylar region of the right femur of a Black South African during a routine osteological study. The diameter of the exostosis measured 15.7 mm at the tip and 26.3 mm at the base. The exostosis is about 30.8 mm from the base of the epicondyle. It is 24.8 mm in length. Gross examination suggests a feature of osteochondroma.

Keywords: Femur, Osteochondroma, South Africa, tumor

INTRODUCTION

Osteochondroma also known as cartilaginous exostosis, is a condition characterized by an outgrowth of bone on the surface of another bone. Osteochondroma is not only limited to human beings (Unni, 2001), but also found in animals (Franch *et al.*, 2005; Matthews *et al.*, 2012; Pool *et al.*, 1972). When present, osteochondroma may occur singly or in multiple known as osteochondromatosis. It is usually located in places such as hips, elbow, ribs, knees, digits but rarely on the skull. Its manifestation may not be immediate and will always show up later in life. Even though it is usually asymptomatic in some patients, that is not the case for others as the symptoms may

range from pain due to compression of adjacent structures to growth retardation. This symptom is also dependent on the location of the exostosis (de Brot *et al.*, 2013). Osteochondromas account for 33.3% of benign bone tumors in the world (Herget *et al.* 2013; Rao *et al.*, 1996). The incidence rate of Osteochondroma in Asia, Europe, America and Africa were 18.5%, 17.2%, 9.9% and 15.2% respectively (Tong *et al.*, 2017). This present study is an incidental finding of Supracondylar Osteochondroma in a Black South African Population.

MATERIALS AND METHODS

This study is an incidental finding during a routine osteological study in the Discipline of Clinical Anatomy, University of KwaZulu-Natal, South Africa. Out of 400 femoral bones that were studied, only one presented with

osteochondroma. A digital vernier caliper was used to measure the cartilaginous exostosis while a meter rule was used to measure the length of the femur.

RESULTS

During a routine osteological study at the Discipline of Clinical Anatomy, School of Medical laboratory Medicine, University of KwaZulu-Natal, Durban, South Africa, we observed a right femur with Supracondylar Cartilaginous exostosis (Fig 1). The length of the entire femur was 45cm. The head circumference was 36.2 mm while its neck measured 20.8mm. The upper, middle and lower diameter of the shaft is 23.7 mm, 21.8 mm and 28.4 mm respectively. The intertrochanteric crest measured 36.5 mm in length. The lateral and

medial articular surfaces measured up to 63.2 mm and 58.5 mm respectively. The exostosis measured 15.7 mm at the tip and 26.3 mm at the base. The exostosis is about 30.8 mm from the base of the epicondyle. The intercondylar notch is 16.9 mm at its widest diameter. It measured 63.2 mm from the tip to the medial border and 38.4 mm from the base to the medial border. The distance of the exostosis from the greater trochanter and lesser trochanter are 36 cm and 31 cm respectively.



Figure 1: Showing the (a) the anterior view of the right femur (b) inferolateral view of the femur (c) inferolateral (closer) view of the femur (d) proximal view of the femur, Arrow pointing to cartilaginous exostosis

DISCUSSION

Gross examination of right femoral bone from this study shows the presence of osteochondroma in a South African population. Even though osteochondroma is rarely reported

in humans, documentations have been noted in animals (Franch *et al.*, 2005; le Roux *et al.*, 2014). Multiple osteochondroma is an autosomal dominant disorder present in

1:50,000 births (Sonne-Holm *et al.*, 2014). It may not be noticeable in young individual but begin to manifest at about age 12 (EL-Sobky *et al.*, 2018). The first noticeable feature is a palpable lump which is mostly bilateral. This condition has no clinical significance (Pollard and Wisner, 2013) except that in some cases, it may hinder growth and cause limb asymmetry (EL-Sobky *et al.*, 2018). Kai Tong *et al.*, 2017 characterized osteochondroma by an epidemiological analysis of the clinical data from one medical institution in South China and noted that osteochondroma have a male predominance in Chinese population and that it occurred mostly at 0–20 years of age. Pierz *et al.*, (2002) and Ahmed *et al.*, (2003) also confirmed that osteochondroma is more

frequent in males than females. In adults, it may transform into chondrosarcomas (Sonne-Holm *et al.*, 2014) or osteosarcoma (de Brot *et al.*, 2013). This has been previously reported in humans and animals (Green *et al.*, 1999; Saglik *et al.*, 2006). Chondrosarcoma is easily suspected when the tumor begins to increase in size after the termination of bone growth thus causing pain as a result of compression of adjacent structures (Peterson, 1998). Biopsy is needed to successfully diagnose chondrosarcomas.

In conclusion, this study has shown that osteochondroma can occur in Black South African population and will provide medical professionals useful information on osteochondroma in South Africa

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