CASE REPORT

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Supracondylar Osteochondroma in a Black South African Population

[1,2]David A. Ofusori*, [1,2]Omobola A. Komolafe, [1]Sunday A Ajayi, [2]Adeleke A. Abiodun

1. Discipline of Clinical Anatomy, School of Laboratory Medicine and Medical Sciences, University of KwaZulu-Natal, Durban, South Africa.
2. Department of Anatomy and Cell Biology, Faculty of Basic Medical Sciences, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria

Correspondence to David Ofusori Department of Anatomy and Cell Biology, Faculty of Basic Medical Sciences, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria. e-mail: davidofus234@yahoo.com. Tel: +234-803-445-5715

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 begins (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 found 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 pains 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). Osteochondroma 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 oseological study in the Discipline of Clinical Anatomy, University of KwaZulu-Natal, South Africa. Out of 400 femoral bones that were studied, only one was presented with osteochondroma. A digital venire caliper was used to measure the cartilageneous exostosis while a meter rule was used to measure the length of the femur.

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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 Cartilageneous 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.

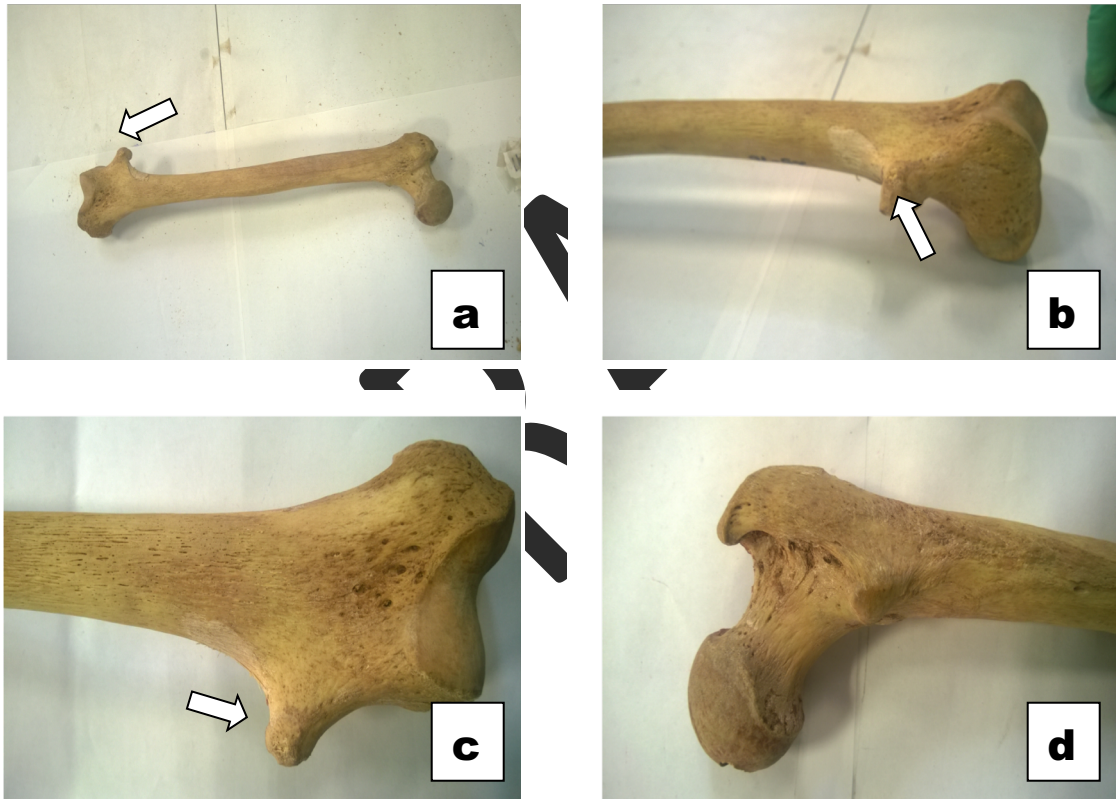

Figure 1: Showing the (a) the anterior view of the right femur (b) inferolateral view of the femur (c) inferiolateral (closer) view of the femur (d) proximal view of the femur, Arrow pointing to cartilageneous exostosis

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 adult, 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) Chondrosarcomas is easily suspected when the tumor begin 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.

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

REFERENCES

1. Ahmed, A. R., Unni, K., Collins, M.S. 2003. Secondary chondrosarcoma in osteochondroma: report of 107 patients. Clin Orthop Rel Res; 411:193-206.
2. de Brot, S., Grau-Roma, L., Vidal, E., Segales, J. 2013. Occurrence of osteochondromatosis (multiple cartilaginous exostoses) in a domestic pig (Sus scrofa domesticus). Zurich Open Repository and Archive, University of Zurich, ZORA, Pg 1-9.
3. EL-Sobky, T.A, Samir, S., Atiyya, A.N., Mahmoud, S., Aly, A.S., Soliman, R. 2018. "Current paediatric orthopaedic practice in hereditary multiple osteochondromas of the forearm: a systematic review". SICOT-J. *doi:10.1051/sicotj/2018002.*
4. Franch, J., Font, J., Ramis, A. 2005. Multiple cartilaginous exostosis in a Golden 20 Retriever cross-bred puppy. Clinical, radiographic and backscattered scanning 21 microscopy findings. Vet Comp Orthop Traumatol 18:189-193.
5. Green, E.M., Adams, W.M., Steinberg, H. 1999. Malignant transformation of solitary spinal osteochondroma in two mature dogs. Vet Radiol Ultrasound 40:634-637.
6. Herget, G.W., Kontny, U., Saueressig, U. 2013. Osteochondroma and multiple osteochondromas: recommendations on the diagnostics and follow-up with special consideration to the occurrence of secondary chondrosarcoma, Radiologe 53(12): 1125–1136.
7. le Roux, C., Kirberger, R., Bogner, G. 2014. Osteochondroma and multiple cartilagenous exostosis involving the distal radius and ulna on adjacent cortices: an unusual manifestation of a common condition Veterinary Record Case Reports 2: e000049. doi: 10.1136/vetreccr-2014-000049.
8. Matthews, K.A., Strait, K., Connor-Stroud, F., Courtney, C.L. 2012. Osteochondromatosis in a Rhesus macaque (*Macaca mulatta*). Comp Med 62:149-152.
9. Peterson, H.A. 1989. Multiple hereditary osteochondromata. Section Ped Orthoped; 239:222-30.

10. Pierz, K.A., Kusumo, K., Dormans, J.P. 2002. Hereditary multiple exostose: one center's experience and review of etiology. Clin Orthop Rel Res; 401:49-59.

11. Pollard, R.E., Wisner, E.R. 2013. Orthopedic diseases of young and growing dogs and cats. In Textbook of Veterinary Diagnostic Radiology 6th edn.Ed D.E. Thrall. Elsevier Saunders. pp 278.
12. Pool, R.R., Carrig, C.B. 1972. Multiple Cartilaginous Exostoses in a Cat. Veterinary Pathology 9:350-359.
13. Rao, V.S., Pai, M.R., Rao, R.C., Adhikary, M.M. 1996. Incidence of primary bone tumours and tumour like lesions In and around Dakshina Kannada district of Karnataka, J. Indian Med.Assoc. 94(3): 103-104,121.

14. Saglik, Y., Altay, M., Unal, V.S. 2006. Manifestations and management of osteochondromas: a retrospective analysis of 382 patients. Acta Orthop Belg 72:748-755.
15. Sonne-Holm, E., Wong, C., Sonne-Holm, S. 2014. Multiple cartilaginous exostoses and development of chondrosarcomas – a systematic review. Dan Med J; 61(9):A4895.
16. Tong, K., Liu, H., Wang, X., Zhong, Z., Cao, S., Zhong, C., Yang, Y., Wang, G. 2017. Osteochondroma: Review of 431 patients from one medical institution in South China Journal of Bone Oncology 8: 23–29.
17. Unni, K.K. 2001. Cartilaginous lesions of bone. J Orthop Sci 6:457-472.