Multiple Osteochondromas Comorbid with Enlarged Parietal Foramina: A Case Report

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Introduction

- Multiple osteochondromas (MO) is a rare genetic disorder characterized by accessory bone growths usually stemming from the epiphyseal plate of long bones. MO affects about 1 in 50,000 live births. Complications of MO include joint disorders, difficulty with movement, loss of circulation, pain, and denervation. Malignancy occurs in 1 out of every 20-200 cases of MO.[1]
- Potocki-Shaffer syndrome (PSS), an even rarer disease (<100 documented cases), is defined by the presence of both MO and an underdeveloped skull. PSS is associated with underdeveloped intellectual abilities, motor skills, and speech.[2]
- Herein, a unique case of MO is reported in order to provide a deeper understanding of this anatomical variation for physicians in the clinical setting. This case was discovered in a male cadaver during a routine dissection.
- This unique combination of bone pathologies provides an opportunity to better understand its presentation and necessitates further investigation on its pathogenesis.

Description

- A 66-year-old Caucasian male donor was examined during a routine cadaveric dissection performed by medical students in the anatomy laboratory.
- Detailed exploration of the skeleton and organs was performed, and photographs were taken.
- Bilateral bony growths were noted to arise from the long bones of the upper and lower extremities (femur, tibia, fibula, radius, and ulna).
- An accessory muscle was found associated with the left radial bony growth.
- Tissue samples were obtained from multiple growths, and histopathological examination was done.
- Histopathological examination was positive for osteochondroma.
- Inspection of the skull revealed enlarged parietal foramina and elongated styloid processes.
- Other findings include tibio-fibular synostosis and abnormally shaped vertebral bodies and ribs.

Results

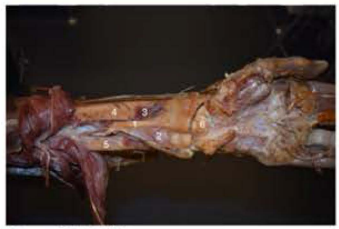

Figure 1. Left forearm.
1. osteochondroma 2. accessory muscle 3. pronator quadratus 4. radius 5. ulna 6. lunate

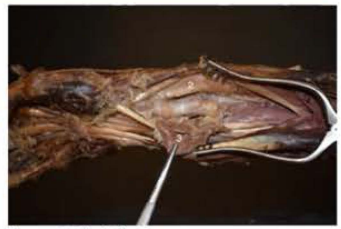

Figure 2. Right forearm.
1. ulnar osteochondroma 2. radius 3. pronator quadratus (splayed from its original position superficial to the osteochondroma)

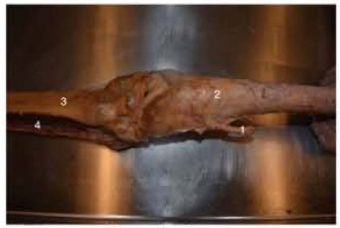

Figure 3. Left lower limb.
1. osteochondroma 2. femur 3. tibia 4. fibula

Figure 4. Right lower limb.
1. osteochondroma 2. femur 3. vastus lateralis 4. tibia 5. fibula

Figure 5. Enlarged parietal foramina indicated by arrows

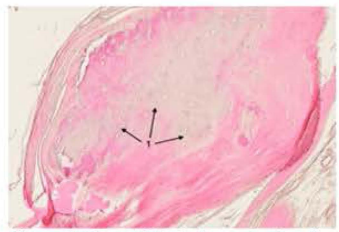

Figure 6. Histopathological examination of osteochondroma from left lower limb shows cartilage cap. 1. chondrocytes

Discussion

- Cases of MO typically have no effect on life expectancy; however, affected patients are liable to present with a variety of clinical symptoms.[4]
- Imaging studies performed early in the management of joint discomfort, limited range of motion, and denervation related to the limbs could diagnose and prevent complications of MO.[5]
- Comorbid neurologic symptoms obligate investigation of the parietal foramina and entire axial skeleton in order to rule out more rare disorders like Hereditary Multiple Exostoses, Eagle Syndrome, PSS, as well as malignancy.[2-4]
- Elongated styloid processes to the degree found in this case may be indicative of Eagle syndrome, another potentially unique comorbidity associated with MO.[3]
- Treatment of MO is usually conservative and supportive, but surgical intervention can be beneficial.[5]
- Due to the nature of this cadaveric study, clinical symptomatology and genetic testing were unavailable and thus limited the correlation of anatomical abnormalities with proposed mechanisms of pathology. In combination with histopathological examination, the above studies could elucidate a clearer clinical picture for those affected with MO or similar disorders.

Conclusion

- This study investigated a unique presentation of MO comorbid with parietal foramina and other bone pathologies.
- Continued research is still needed to provide a better understanding of this disease in the clinical setting.

References

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Acknowledgments

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