INTRODUCTION

Blood flow is essential for osteogenesis, bone development maintenance, bone vitality, fracture, and other injury healing. Three different kinds of arteries deliver blood to the long bones. Arteries enter diaphysis, periosteal vessels, nutritional arteries, and epiphyseal metaphyseal vessels. These arteries are anastomosing with each other. Through tiny foramina, these blood arteries penetrate the metaphyses and epiphyses. We refer to these foramina as nutritional foramina. Since cancellous bone undergoes most of the remodeling activity in adult bone, its vascular pattern is crucial. If the nutritional artery is injured, the diaphysis may still get blood flow from the medullary and periosteal circulations, which means that the long bones of the upper limb will not be severely affected. Large and
small foramina, also known as nutritional foramina, are found in the long bones of the upper limbs and serve as blood vessel entrances \(^3,4\). They enter nutrition channels in long bones that lead to the medullary cavity. Long and asymmetrical bones have these channels\(^5\).

The direction of the nourishment foramina is shown by the developing end of the bone, which grows more swiftly than the non-growing end. From the place of development, the nourishment tubes go outward\(^6,7\).

**MATERIALS AND METHODS**

Ninety-long bones from the human upper Limb were studied in this research. These skeletons were dried and cleaned. Thirty ulnae, 30 radii, and 30 humeri were among them. The anatomy departments of Ayub and Khyber Medical Colleges provided these bones, respectively.

It was unknown how old and what gender the bones were. Every bone was examined macroscopically to determine the nutrition foramina’s quantity, orientation, and direction. Simple counting was done for the number. The foramina were numbered one millimeter from the boundaries.

Every location of the foramina was seen under a microscope. The stiff wire was employed for obliquity and direction.

**RESULTS**

The orientation of nutritional foramina was proximal in all the ulnae evaluated in our investigation. 13.3% of them possessed double nutrient foramina, whereas 86.6% of them had single nutrient foramina. One nutrient, foramina, was present in 67.0% of the humerus in this investigation.

Nutrient foramina were doubled in 30.3%. Nutrient foramina comprised 3.3%. Nutrient foramina were directed distally in the humerus. Every radius had a single nutritional foramen. The directions of nutrients were proximally oriented.

**DISCUSSION**

Every long bone in the upper Limb has a specific location for nutrition foramina. The ulnae and radii’s growth ends are near their lower ends. Still, the humeri’s growing ends are toward their top ends.8 Humerii often contain radial grooves and double nutrient foramina (42%). In this regard, they are comparable to the earlier research conducted by Caroll 1963 and Kizil Kanat et al. (2007). The proportion of double foramina in our research was 30.3%\(^9,10\). According to our investigation, the triple foramina was 3.3%\(^11,12\).

Every radius in our investigation showed a single nutrient foramen. According to earlier research, ninety percent of the radii had solitary nutrient foramina, in line with Nagel’s (1993) and Ferriol Campos’s (1987) research. No radii lacking nutritional foramina were found in our investigation\(^13,14\), and 15. 13.3% of ulnae instances had double nutrient foramina, compared to 86.6% with single nutrient foramina. Similar to research by Kizil Kanat et al., earlier investigations revealed a single nutritional foramen in Tulane (2007)\(^16\).

In our study, humeri had nutrient foramina directed away from the growing end, which mates with the previous studies. Similarly, in cases of radii, nutrient cases foramina were in the proximal direction, which aligns with previous studies\(^17\).

**CONCLUSION**

Our research supported earlier findings on the quantity and location of the nutrient foramina. Long bones in the upper Limb The clinical importance of the nutritional foramina was also shown by our investigation. To prevent injury to nutrient veins during surgical operations, the number and location of nutrient
foramina in bone shafts must be precise.

REFERENCES


3. Davies, P. The straight-tusked elephant (Palaeoloxodon antiquus) in Pleistocene Europe. University of London, University College London (United Kingdom); 2002.


