

**PP-036****The unlikely pathologic fracture of the humerus****P. Neves**, P. Barreira, P. Leite, L. Leite, D. Soares, P. Cardoso*Centro Hospitalar do Porto, Porto, Portugal*

**Introduction:** The humerus is the second most affected bone by metastasis. Despite the initial treatment with radiotherapy, surgery is usually necessary in case of pathologic fracture or imminent one. Mirels Criteria, accepted to determine the need of a prophylactic treatment of a pathologic fracture, are dependent of the fact that the bone is or is not subjected to loading. These criteria may not be valid for the humerus because, with the dysfunction of the inferior limbs, the superior ones are functionally requested.

**Objectives:** Evaluation of both, the operated pathologic humerus fractures and Mirels classification, on the metastasis where the fracture occurred, in order to determine if it would be advantageous for those fractures to be treated prophylactically.

**Material and Methods:** Between 2008 and 2013 were operated 17 pathologic fractures at our Hospital. Three corresponded to metastases of a primitive tumor of lung, 5 of the breast, 4 myeloma, 3 prostate, 1 kidney and 1 hemangiopericyoma of the skull. We analyzed the metastases by consulting the X-rays of the fractures or, when available, before the fracture happened, and classified them by Mirels criteria. We also consulted the clinical records to determine the pain and the presence of other metastases, including at the inferior limbs, pelvis and spine. All the fractures were treated by closed nailing.

**Results/ Discussion:** The radiological evaluation showed that 5 (30%) metastases had a score equal or inferior to 7, five (30%) had a score of 8 and 7 (40%) had score equal or superior to 9. Moreover, from the ten metastases with a score equal or inferior to 8, 60% had metastases at the pelvis, spine or femur. Despite this score, which wouldn't indict the need of nailing, the fracture occurred, which reinforces the non validity, at least in absolute terms, of these criteria at superior limb. That fact is probably explained by the solicitation of superior limb on patients with diffuse metastases affecting pelvis, spine and lower limbs.

**Conclusion:** The functional and mechanic evaluation of the humerus in the presence of metastases shouldn't be based only on Mirels criteria. Probably the prophylactic surgical treatment of the fractures should be more frequently used.