SCIENTIFIC ARTICLE

Nonsurgical Treatment as Alternative to Surgical Treatment in Enchondromas of the Distal Phalanx. Analysis of a Series of 11 Cases

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Purpose To describe the results of nonsurgical and surgical treatment of enchondromas of the distal phalanx of the hand.

Methods Eleven enchondromas of the distal phalanx were retrospectively reviewed. Five patients underwent surgery (curettage and autogenous cancellous bone graft from the iliac crest) and 6 patients were treated nonsurgically. Clinical records and radiographs were reviewed for each patient. We recorded complications and cosmetic and functional results. Radiographic healing in surgical patients was scored according to the classification of Tordai and to the criteria of Wilhelm and Feldmeier. The average follow-up of the nonsurgical and surgical cases was 45 and 62 months, respectively.

Results Eight patients were women. Average age at diagnosis was 40 years. Nine patients presented with a pathological fracture. The demographic characteristics of the surgical group and nonsurgical group were similar. Among the cases treated nonsurgically (6), 1 had 2 pathological fractures after diagnosis. At final follow-up, the average pain on a visual analog scale was 2.8. With the exception of 1 patient, the range of motion of the fingers was normal or minimally reduced. Among the surgical cases (5), there were no complications in the bone graft donor site, 2 patients developed infections in the operated finger, and no postoperative pathological fractures were found. At final follow-up, the average pain was 3.2. Joint mobility was normal in 3 patients. Postoperative radiological examination revealed complete bone healing in all patients (grade I in the Tordai classification). No local recurrence was seen. According to the criteria of Wilhelm and Feldmeier, there were 3 excellent, 1 good, and 1 satisfactory results in the surgical group, and 2 excellent, 3 good, and 1 satisfactory results in the nonsurgical group.

Conclusions Surgical and nonsurgical treatment in distal phalanx enchondromas appear to be associated with satisfactory results, although each has their own advantages and disadvantages. *(J Hand Surg Am. 2018;■(■):1.e1-e7. Copyright © 2018 by the American Society for Surgery of the Hand. All rights reserved.)*

Type of study/level of evidence Therapeutic IV.

Key words Conservative treatment, curettage, distal phalanx, enchondroma, hand.

Online Exclusive

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Received for publication January 18, 2017; accepted in revised form February 2, 2018.

No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.

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0363-5023/18/■ ■ -0001$36.00/0
https://doi.org/10.1016/j.jhsa.2018.02.004

Enchondromas are the most common bone tumor of the hand, with the proximal phalanx as the most frequent location.[1,2] They are diagnosed incidentally or once they cause symptoms, usually after a pathological fracture due to minor trauma.[3] Radiological findings include a well-defined central osteolytic lesion. Small and asymptomatic solitary enchondromas found incidentally in radiographs may be treated by observation. Surgical treatment is usually considered to be indicated in symptomatic cases and to prevent pathological fractures.[1,4–6]

Enchondroma in the distal phalanx is rare and only a small number of cases have been reported,[5,7–15] sometimes with avulsion of the flexor digitorum profundus (FDP) tendon.[11] The need for surgical treatment remains controversial.

The objective of our study was to describe the results of surgical and nonsurgical treatment of enchondromas of the distal phalanx of the hand in a series of 11 patients.

MATERIALS AND METHODS

In the period from 2006 to 2016, a total of 31 enchondromas in the hand were diagnosed by our orthopedic oncology team. Eleven cases were in the distal phalanx and formed the study sample. Informed consent to participate was obtained from all patients and the ethics committee of the hospital approved the study. Diagnosis was based on clinical presentation and appearance of the lesion on plain radiographs, magnetic resonance imaging, and/or computed tomography, with histopathological confirmation in the surgical specimens. Surgical treatment was recommended to all patients to prevent complications such as the avulsion of the FDP tendon, although nonsurgical treatment was offered as an alternative. Five patients underwent surgery and 6 patients chose nonsurgical treatment. For patients presenting with pathological fracture (9 patients), the fracture was allowed to heal before any other treatment. In these cases, the finger was immobilized with a splint to the neighboring finger for 2-3 weeks and surgical treatment was proposed 6 months later to allow for cortical strengthening.

The surgical procedures were performed under general anesthesia. First, autogenous cancellous bone graft was harvested from the iliac crest. Then, the involved finger was exsanguinated. A longitudinal incision on the radial or ulnar side of the distal phalanx was performed and the cortex of the bone over the tumor exposed. At the thinnest point, a cortical window the size of the longest longitudinal dimension of the tumor was made with a scalpel to allow exposure of the entire lesion. The tumor was curetted using a small curette. The resulting cavity was filled with the impacted autograft and the periosteum repaired where possible. Postoperative immobilization with buddy splinting (3 patients) or finger splinting (2 patients) was applied until the wound healed. Active range of motion (ROM) exercises were begun at that point. Heavy hand use and manual work were not allowed until 6 to 8 weeks later. Nonsurgical treatment consisted of informing the patient of possible complications and not restricting any activity once the pathological fracture had healed.

Clinical records and plain radiographs were analyzed for each patient. After treatment, assessment was performed at standard intervals (1 week, 1 month, 3 months, 6 months, and annually thereafter) and a final evaluation was conducted with a minimum of 1 year of follow-up (range, 12–93 months; average, 52 months). The average follow-up of the nonsurgical and surgical cases was 45 and 62 months, respectively. We recorded complications and cosmetic and functional results. The cosmetic result was considered acceptable or not acceptable by the patient and by the surgeon, without disagreements in any case. Pain was evaluated using a visual analog scale (0–10, 0 being the absence of pain and 10 the worst imaginable pain). The ROM was estimated by the surgeon comparing it with that of the healthy hand (stiffness or nonstiffness, when more or less than half of the distal interphalangeal [DIP] joint movement was lost, respectively). Surgical patients were followed for recurrences and radiographic healing according to the classification system of Tordai et al[16]: bones with normal cortex and spongiosa or a bone defect smaller than 3 mm in diameter (grade I), bone defects 4 to 10 mm in diameter but with no clear-cut recurrence (grade II), and bone defect larger than 10 mm with the characteristics of enchondroma (grade III). Final results were evaluated in accordance with the criteria of Wilhelm and Feldmeier.[17] One point was given for each criterion fulfilled: cosmetic, extent of active mobility, grip and compressive force, and radiographic healing without shortening, deformation, osteoarthritis, or recurrence of the tumor. In the nonoperated cases, radiographic healing was considered to have occurred when there were no changes or progression in the osteolysis. Four points were classified as excellent, 3 points as good, 2 points as satisfactory, and 1 point as poor.

RESULTS

Patients' demographics (including site and size of the tumor, and clinical presentation), type of treatment, operative details, and postoperative outcomes are