Case Report

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# Humerus fracture in an elder patient without movement disability. A case report

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## Abstract

A 75-year-old male presented to the emergency department of a local rural health center complaining of severe right shoulder pain. The patient reported a severe fall while he was walking a year ago. Due to COVID-19 pandemic he had an x-ray at a private medical diagnostic imaging center but he did not have his x-ray explained by a hospital doctor or his general practitioner. He reported pain and movement disability only for the first 10 days after the fall and that he had full strength recovery aftert two weeks without sling immobilization or physiotherapy. There are several strategies for thetreatment of humeral fractures especially for the elderly, without any recommendations to follow an evidence specific procedure.

## Introduction

Humerus fractures are common osteoporotic fractures in the elderly [1] and the majority of them are non operatively managed [1]. Bone mass, movement ability and the patients' medical history need to be assessed [1]. A good outcome predictor is patients' moving ability [1]. Due to the unclear evidence-based treatment of choice, the surgeon should consider the comfort level with the specific procedures in order to choose [1].

The incidence of humerus fractures is 6% [2]. The majority of the patients are female over 50 years old [2]. The anatomy of the area helps stabilizing the shoulder due to tendons that produce reliable deforming forces on bone fragments [3]. A displacement greater than 1 cm can affect movement ability and proper muscle tension [4,5]. Theaxillary and suprascapular nerve are most often injured [6].

A classification for humerus fractures (NeerClassification) divides the area of humerus bone in 4 sections and is a helpful tool for management and diagnosis [7]. A fragments'displacement greater than 1 cm creating an angle $45^0$ with the vertical axon of humerusbone is considered important [8].

## Case presentation

A 75-year-old man with a medical history of hypertension visited the emergency department of our rural health center because he felt pain in the right shoulder. He reported a fall while he was walking a year ago. After the fall he felt severe pain and movement disability only for the first two weeks. He never had a bone density test to evaluate osteopororis and assess the risk of bone fracture. - Following the accident, he did not wear a sling to immobilize his shoulder and he was not was examined by a physician or a physiotherapist. The past x-rays showed right humerus fracture while the present did

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not. There was a full recovery without any special treatment or medical advice. The patient reportedthat due to COVID-19 pandemic he did not visit a medical center or other primary care setting to seek medical advice. Because of the reccurence of the pain We recommended bone density testing for osteoporosis evaluation and we referred the patient to an orthopedicdoctor specialized in shoulder pain rehabilitation but hedenied.

There are not specific recommendations for humerusfracture treatment especially in elder patients. There is a great debate whether patients may profit from surgical or conservative treatment in this type of fractures. This unique case reports there was no fragment displacement, the patient experienced no severe pain or movement disability two weeks after the fall. Conservative treatment can be more effective in older patients and may be cost effective for health systems.

***Figure 1:*** *Presents the humerus fracture after the fall a year ago.*

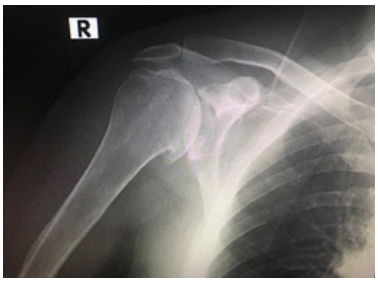


***Figure 2:*** *Presents the humerus bone, fully recovered.*

## Discussion

The Health Technology Assessment (HTA), for measuring the effectiveness of humerus treatment revealed that surgical treatment was not associated with better outcome for non displaced humerus fractures [9]. In addition, Launonen et al., report not important benefit of surgical treatment compared to conservative [10]. A systematic review by Beks et al., 2018 [11] concluded to similar findings. In a study of 30 patients, 40% of humerus fractures were linked to cuff tears [12]. Functional loss follows rotator cuff tears [13].

Following surgical fixation of humerus fractures there is no significant difference regarding the different age groups of the patients [14-16]. A study showed that more important is the social independence before the fracture [17]. A Cochrane review [18] reports that there is insufficient evidence to provide individual recommendations for humerus fractures proper treatment. In general, non displaced fractures, difficult surgical patients and social independent patients are treated conservatively [1]. Around 50% of all humerus fractures may be conservatively treated because there are no displaced fragments [19]. Fewstudies reported controversial results about the proper treatment and outcomes regarding to humerus [20-22]. This underlines the need for more well-designed cost-effectiveness studies [9]. Instead of prolonged hospital stays, home care and short time stays in home is preferred for the elderly in contrast to younger population. Rehabilitation costs may be a higher priority [9]. It is worth noting that the amount of high cost fracture surgery is rising despite the absence of scientific effectiveness [9]. A British study showed that a great amount of resources could be saved if non-operative treatment is chosen instead [23]. However, over the past decade, most of older adults with proximal humerus fractures continue to receive non operative treatment [24].

In conclusion, low risk surgical patients with displaced humerus fracture, are good candidates for surgical repair. On the other hand, in elderly patients without displaced fragment of humerus fracture conservative treatment is more cost effective.

Further studies in this field will contribute to conduct specific recommendations for proper management of humerus fractures.

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## References

1. Schumaier A, Grawe B. Proximal Humerus Fractures: Evaluation and Management in the Elderly Patient. Geriatr Orthop Surg Rehabil. 2018; 9: 2151458517750516. Published 2018 Jan 25. doi:10.1177/2151458517750516.

2. Calvo E, Morcillo D, Foruria AM, Redondo-Santamaría E, Osorio-Picorne F, Caeiro JR. Nondisplaced proximal humeral fractures: high incidence among outpatient-treated osteoporotic fractures and severe impact on upper extremity function and patient subjective health perception. J Shoulder Elbow Surg. 2011; 20(5): 795-801. doi:10.1016/j.jse.2010.09.008.

3. Boileau P, Walch G. The three-dimensional geometry of the proximal humerus. J Bone Joint Surg Br. 1997; 79-B(5): 857-865.

4. Murachovsky J, Ikemoto RY, Nascimento LGP, Fujiki EN, Milani C, Warner JJP. Pectoralis major tendon reference (PMT): a new method for accurate restoration of humeral length with hemiarthroplasty for fracture. J Shoulder Elbow Surg. 2006; 15(6): 675-678. doi:10.1016/j.jse.2005.12.011.

5. McLaurin TM. Proximal humerus fractures in the elderly are we operating on too many? Bull Hosp Jt Dis N Y N. 2004; 62(1-2): 24-32.

6. Visser CP, Coene LN, Brand R, Tavy DL. Nerve lesions in proximal humeral fractures. J Shoulder Elbow Surg. 2001;10(5):421-427. doi:10.1067/mse.2001.118002.

7. Carofino BC, Leopold SS. Classifications in brief: the Neer classification for proximal humerus fractures. Clin Orthop. 2013; 471(1): 39-43. doi:10.1007/s11999-012-2454-9.

8. Gallo RA, Sciulli R, Daffner RH, Altman DT, Altman GT. Defining the relationship between rotator cuff injury and proximal humerus fractures. Clin Orthop. 2007; 458: 70-77. doi:10.1097/BLO.0b013e31803bb400.

9. Mellstrand Navarro C, Brolund A, Ekholm C, et al. Treatment of humerus fractures in the elderly: A systematic review covering effectiveness, safety, economic aspects and evolution of practice. PLoS One. 2018; 13(12): e0207815. Published 2018 Dec 13. doi:10.1371/journal.pone.0207815.

10. Launonen AP, Lepola V, Flinkkila T, Laitinen M, Paavola M, Malmivaara A. Treatment of proximal humerus fractures in the elderly: a systemic review of 409 patients. Acta orthopaedica. 2015; 86(3): 280-5. Epub 2015/01/13. 10.3109/17453674.2014.999299 ; PubMed Central PMCID: PMCPMC4443467.

11. Beks RB, Ochen Y, Frima H, Smeeing DPJ, van der Meijden O, Timmers TK, et al. Operative versus nonoperative treatment of proximal humeral fractures: a systematic review, meta-analysis, and comparison of observational studies and randomized controlled trials. Journal of shoulder and elbow surgery / American Shoulder and Elbow Surgeons [et al.]. 2018. Epub 2018/05/08. 10.1016/j.jse.2018.03.009.

12. Gallo RA, Sciulli R, Daffner RH, Altman DT, Altman GT. Defining the relationship between rotator cuff injury and proximal humerus fractures. Clin Orthop. 2007; 458: 70-77. doi:10.1097/BLO.0b013e31803bb400.

13. Fjalestad T, Hole MØ, Blücher J, Hovden IAH, Stiris MG, Strømsøe K. Rotator cuff tears in proximal humeral fractures: an MRI cohort study in 76 patients. Arch Orthop Trauma Surg. 2010; 130(5): 575-581. doi:10.1007/s00402-009-0953-2.

14. Grawe B, Le T, Lee T, Wyrick J. Open reduction and internal fixation (ORIF) of complex 3- and 4-part fractures of the proximal humerus: does age really matter? Geriatr Orthop Surg Rehabil. 2012; 3(1): 27-32. doi:10.1177/2151458511430662.

15. Hinds RM, Garner MR, Tran WH, Lazaro LE, Dines JS, Lorich DG. Geriatric proximal humeral fracture patients show similar clinical outcomes to non-geriatric patients after osteosynthesis with endosteal fibular strut allograft augmentation. J Shoulder Elbow Surg. 2015; 24(6): 889-896. doi:10.1016/j.jse.2014.10.019.

16. Goch AM, Christiano A, Konda SR, Leucht P, Egol KA. Operative repair of proximal humerus fractures in septuagenarians and octogenarians: does chronologic age matter? J Clin Orthop Trauma. 2017; 8(1): 50-53. doi:10.1016/j.jcot.2017.01.006.

17. Clement ND, Duckworth AD, McQueen MM, Court-Brown CM. The outcome of proximal humeral fractures in the elderly: predictors of mortality and function. Bone Joint J. 2014; 96-B(7): 970-977. doi:10.1302/0301-620X.96B7.32894.

18. Handoll HHG, Ollivere BJ, Rollins KE. Interventions for treating proximal humeral fractures in adults. Cochrane Database Syst Rev. 2012; 12: CD000434 doi:10.1002/14651858.CD000434.pub3.

19. Bergdahl C, Ekholm C, Wennergren D, Nilsson F, Möller M. Epidemiology and patho-anatomical pattern of 2,011 humeral fractures: data from the Swedish Fracture Register. BMC Musculoskelet Disord. 2016; 17: 159 doi:10.1186/s12891-016-1009-8.

20. Corbacho B, Duarte A, Keding A, Handoll H, Chuang LH, Torgerson D, et al. Cost effectiveness of surgical versus non-surgical treatment of adults with displaced fractures of the proximal humerus: Economic evaluation alongside the profher trial. Bone and Joint Journal. 2016; 98B(2): 152-9. PubMed PMID: 20160156676; PubMed Central PMCID: PMC26850418.

21. Nwachukwu BU, Schairer WW, McCormick F, Dines DM, Craig EV, Gulotta LV, et al. Arthroplasty for the surgical management of complex proximal humerus fractures in the elderly: A cost-utility analysis. Journal of Shoulder and Elbow Surgery. 2016; 25(5): 704-13. PubMed PMID: 20160224309 FULL TEXT LINK 10.1016/j.jse.2015.12.022.

22. Fjalestad T, Hole MO, Jorgensen JJ, Stromsoe K, Kristiansen IS. Health and cost consequences of surgical versus conservative treatment for a comminuted proximal humeral fracture in elderly patients. Injury. 2010; 41(6): 599-605. Epub 2009/12/01.

23. Dean BJ, Jones LD, Palmer AJ, Macnair RD, Brewer PE, Jayadev C, et al. A review of current surgical practice in the operative treatment of proximal humeral fractures: Does the PROFHER trial demonstrate a need for change? Bone & joint research. 2016; 5(5): 178-84. Epub 2016/05/15. 10.1302/2046-3758.55.2000596; PubMed Central PMCID: PMCPMC4921043.

24. Patel AH, Wilder JH, Ofa SA, et al. Trending a decade of proximal humerus fracture management in older adults. JSES Int. 2021; 6(1): 137-143. Published 2021 Oct 13. doi:10.1016/j.jseint.2021.08.006.