

Case Report

Management of unusual metallosis and failed elbow replacement in rheumatoid female: a case report.

Kuldeep Nahar*, Nikita Nahar

Department of Orthopaedic, GRMI Ahmedabad, NHL Medical College Ahmedabad, Gujarat, India

Received: 20 December 2019

Revised: 12 February 2020

Accepted: 14 February 2020

***Correspondence:**

Dr. Kuldeep Nahar,

E-mail: naharkuldeep@yahoo.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

42 years old female who was operated for rheumatoid arthritis elbow right side with revision of total replacement. Her elbow was primarily replaced 10 years before this surgery. She had severe metallosis and breakage of ulnar stem, loosening of cement (ulnar). Humerus stem was well fixed. Massive metal debris in soft tissue was removed. humerus side cement and stem were removed by splitting the bone. Revision stem was fixed with cement and circumferential wiring. On 6 yrs following surgery, patient is doing well in terms of pain relief and range of motion around elbow. She is doing almost all activities of daily life. Early detection and removal primary implant are the need of hour to save the ill effects of metallosis and bone resorption.

Keywords: Rheumatoid arthritis elbow, Broken implants, Metallosis, Revision elbow arthroplasty

INTRODUCTION

Total elbow replacement is the treatment of choice for severe rheumatoid arthritis of the elbow joint. It is preferable over fusion, synovectomy or interposition arthroplasty because of regains of motion in elbow.^{1,2}

As younger population is involved in rheumatoid induced arthritis incidents of loosening and metallosis are more alongside the implant fractures. Chances of early failure of ulnar side will be more as compared to humeral side.³

Reason being smaller stem size and thin polyethylene interfaces. Micromotion and loose polyethylene particles add to the failure. Bone resorption, osteoporosis and metallosis makes the environment more miserable.⁴ In such cases revision becomes more imminent for the betterment.

CASE REPORT

Patient and method

42 years female presented with painful movements and instability of right elbow. She had history of active rheumatoid arthritis of elbow and operated for total replacement of elbow 10 years back. X-ray of right elbow show resorption of periarticular bone and metallosis with broken ulnar stem. The humeral stem appears well fixed with cement. Elbow explored from posterior incision. All black massive metal debris removed. Ulnar broken implant along with cement removed. Humeral implant and cement removed by making a large window on posterior surface of bone. Revision humeral stem was fixed with cement and cerclage wires. Ulnar stem also fixed with cement and joint assembled and closure done in layers.

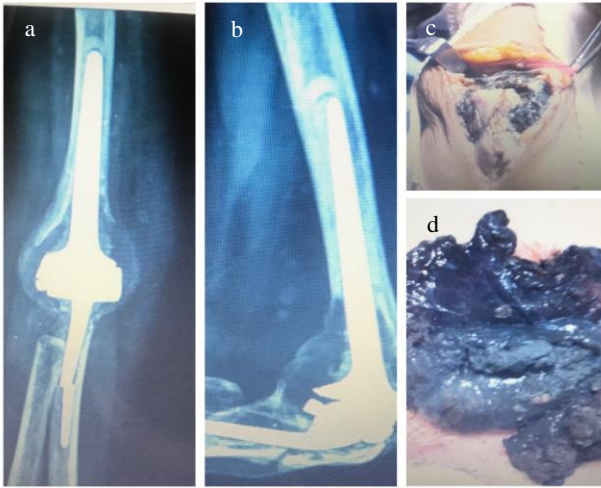


Figure 1: (a-d) Pre-operative X-ray right elbow and intraoperative picture right elbow.

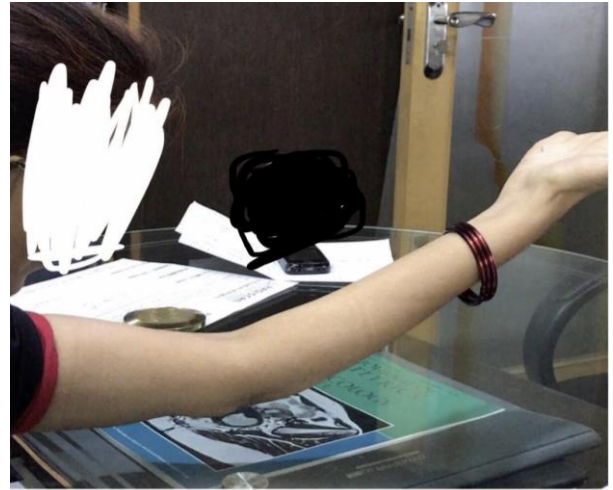


Figure 4: Clinical picture of elbow range of motion in extension after 5 years.



Figure 2: Intraoperative removed implant shows the wear and tear with complete loss of plastic.



Figure 5: Range of motion in flexion after 5 years.



Figure 3: (a, b) Post-operative X-ray picture after 5 years.

DISCUSSION

As compared to total hip and knee replacements the long-term survival is lesser. Chances of aseptic loosening, metallosis, bone resorption, implant breakage are more in elbow because of small contact surface and more concrete forces plus narrow polyethylene layers.^{4,5} Small lengths of stems of humerus and ulna also produce stress on cement interface. Keeping strict observations on follow up can avoid further complications of metallosis.⁶ Timely revision of joint should be the appropriate approach. Kodama A, et al. 2017,³ showed that disease duration of rheumatoid arthritis up to the Total elbow arthroplasty of < 15 years and a pre-operative range of movement (ROM) of > 85° were significant risk factors for revision or aseptic loosening. Previous synovectomy does not diminish the outcome after total elbow prosthesis in this series and could therefore be considered in early, painful stages of rheumatoid destruction of the elbow joint.⁶ Landor I, et al. 2004 Long-term follow-up. Showed that The Kaplan-

Meier survival rate was 70% and 53% at ten and 16 years, respectively.⁴ Failure of the ulnar component was found to be the main problem in relation to the loosening. Total elbow replacement is having a more complications rate in terms of loosening and metallosis so it should be used in more debilitated patient as if very much indicated.⁷

CONCLUSION

Early detection of metallosis and bone resorption in total replacement of elbow in rheumatoid arthritis is very important to avoid further complications, for pain relief and smooth Joint motion. Revision of joint should be performed as early as possible.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Güttler K1, Landor I, Vavřík P, Popelka S, Sosna A, Krásenský J. Total elbow replacement in patients with rheumatoid arthritis. Acta Chir Orthop Traumatol Cech. 2011;78(5):423-30.
2. Vander lugt JCT, Geskus RB, Rozing PM. Influence of previous open synovectomy on the outcome of Souter-Strathclyde total elbow prosthesis Rheumatology. 2004;43(10):1240-5.
3. Kodama A, Mizuseku T, Adachi N. Kudo type-5 total elbow arthroplasty for patients with rheumatoid arthritis: a minimum ten-year follow-up study. Bone Joint J. 2017;99-B (6):818-23.
4. Landor I, Varik P, Jahoda D, Guttler K, Sosna A. Total elbow replacement with the Souter-Strathclyde prosthesis in rheumatoid arthritis: long-term follow-up. J Bone Joint Surg. 2017;88(11):1460-63.
5. Sjöden GO, Lundberg A, Blomgren GA. Late results of the Souter-Strathclyde total elbow prosthesis in rheumatoid arthritis. 6/19 implants loose after 5 years. Acta Orthop Scand. 1995;66:391-4.
6. Van der Lugt JC, Geskus RB, Rozing PM. Primary Souter-Strathclyde total elbow prosthesis in rheumatoid arthritis. Bone Joint Surg Am. 2004;86(3):465-73.
7. Van der Lugt JC, Rozing PM. Systematic review of primary total elbow prostheses used for the rheumatoid elbow. Clin Rheumatol. 2004;23(4):291-8.

Cite this article as: Nahar K, Nahar N. Management of unusual metallosis and failed elbow replacement in rheumatoid female: a case report. Int J Res Orthop 2020;6:413-5.