

Case Report

Elder Neglect Associated With Repeated Multiple Complete Denture Prosthesis Fractures

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ABSTRACT:

Social interaction between humans occur across all ages and cultures, and is considered an essential element of humans' social ability. Humans when born are taken care of by parents and when they are about to die are expected to be taken care of their children. At times, these relations may not follow norms which is when an elderly starts being maltreated by those who are supposed to take his care. Elder abuse is prevalent among medical and dental outpatients and has been observed to affect treatment compliance. Interventions in elder abuse are primarily to prevent its occurrence by proper community education. We present a case of an elderly patient who reported with repeated fractures of his two prostheses (complete dentures) in a span of 6 months. Other features that indicated him being an elder abuse victim included not getting denture treatment for 4 years, unusual pattern of denture fractures and not having witnessed how the denture fractured. The patient was given a new complete denture prosthesis that was fabricated with a permanent metal denture base. The patient was satisfied with the treatment outcome.

Keywords: Abuse Elder; Elder Mistreatment; Elder Neglect; Depression; Complete Denture

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INTRODUCTION

The basis of human being termed as a social animal is due to the fact that humans are highly interactive with its own species members. This interaction develops into relations in which expectations are to take care of each other, especially in times of poor health or poor social well being [1]. Neglect on the other hand is a general term that broadly means inability to take care and is determined mainly depending upon the type of relation the perpetrator has with the victim [2]. Medical and social science has found neglect to substantially influence the outcome of a disease as well as the treatment and therefore various terms have been used to define different types according to the age and relation of one person to another. Parents neglecting their children have been termed as either intentional or unintentional while some cases it is circumstantial, but outcome remains the same which is parental inaction depriving the child of its basic right [3], [4]. Similarly, when a child is neglecting his elderly parent, it is termed as inability to take care of the elderly which is the basic right of the victim at that

age [5]. Generally, when it comes to legislations and regulations, most of the governing bodies have kept silent on such socially sensitive issues. Such reticence is especially seen in cultures that are conservative and believe more in traditional values [6], [7]. Neglect can also be inflicted by a person upon itself due to various reasons (social, psychological, physical), in which case it becomes important to differentiate from the neglect inflicted by others. Self neglect in medical science has high mortality rates while reducing treatment compliance and satisfaction at the same time [8].

Higher life expectancy began a steep rise after invention of antibiotics, but other factors like healthcare facilities and improvements have also played a major role [9]. The aged population is since then growing, and according to recent estimates the global aged population (above 60 years) will be upto a phenomenal 2.1 billion by year 2050 [10]. The problem is going to be more severe in low income countries like India, with predictions saying that 80 percent elderly being in low income countries [11].

According to reports from India, the current estimates of elderly population are about 7.7% (77 million elderly) which is going to increase to 177 million in few decades [12]. Taking care of the elderly population has been stated by many researchers to be one of the most daunting tasks for future governments in many developed and developing countries [13]. Some countries having low fertility rates have also resulted in more aged population without anyone to take care of the elderly. Elder maltreatment is a general word but has also been specifically defined by various terms like elder abuse, elder neglect, elder mistreatment. The term elder neglect specifically implies when an elderly person is subjected to a psychological form of elder abuse in which the emotional component is higher than any other forms of abuse [14]. The complexity of elder abuse/neglect is dynamic since it is progressive in nature and cannot be predicted at one point of time [15]. Authors have also accepted that such treatment may vary on a person from one day to another and within the same day. A large percentage (40 percent or more) of elderly medical and dental patients have been found to suffer from abuse of one form or the other by neglect being the most common [16], [17]. Most of the steps taken by various governments have been primarily directed at prevention of elder abuse by education of the population at community level [18]. Interventions at such levels have been found to prevent certain types while other types were not influenced among different communities [19]. Certain interventions have also been directed to stop elder maltreatment with good outcome [20], [21]. Sensitization of family members using psychotherapy was found to positively influence prosthodontic treatment outcomes in the Indian population [22]. Elder abuse can be also predicted by using markers like nutritional status, with some of them having the potential to be forensic markers in investigating crime against the elderly [23]. Elderly patients invariably require dentures in one form or the other to fulfill their abilities to masticate. Complete denture prosthesis is invariably required by all elderly even with the advent of implant supported prosthesis. Therefore, the status of the complete denture prosthesis can be used to predict the existence of elder abuse in an individual. Frequent, repeated denture fractures and fracture locations can be used to identify neglect related to the elderly prosthodontic patient. This article in the form of case report presents one such case which reported with frequent and unusual pattern of complete denture prosthesis fractures in the last 6 months despite the patient not having any oral condition that will cause denture fractures. The case was successfully treated with metal denture base replacing acrylic denture base.

CASE REPORT

An elderly male patient reported to the division of Prosthodontics with a chief complaint of repeated breakage of previous complete dentures and chronic

discomfort associated with denture wearing. The patient's medical history was insignificant to existing dental condition. Patient was not socially active and was living with his son upon whom he was totally dependent to seek treatment and/or other social affairs. Patients dental history disclosed that the patient had become completely edentulous about 5 years back and got his first denture made after more than 4 years of becoming edentulous. Two complete dentures were fabricated till date during last six months and both were not in working condition. The patient claimed that once the denture was broken as it fell down from the table where he was cleaning, once it was thrown

by a child, and several other times he noticed the broken dentures without ever seeing it broken. This meant the dentures fractured without him noticing when and how. Patients extra oral examination revealed that he had a long maxillary lip relative to the lower third of the face (Figure 1A). Other extra oral features were within normal limits in terms of anatomy and physiology. Examination of existing dentures showed that the dentures were fractured at multiple areas in the region of the flanges and posterior palatal seal area (Figure 1B). Both maxillary and mandibular dentures were affected by fractures. Intra oral examination revealed well formed maxillary residual alveolar ridge with broad posterior ridges and normal, healthy, firm and resilient mucosa overlying the ridge (Figure 1C). Since previous dentures were suggestive of indifferent patient attitude and social history suggesting a strained social relation, therefore before starting the treatment the patient was tested for elder neglect by answering an elder abuse and neglect questionnaire that had 21 items [23]. The findings indicated that patient was suffering from elder abuse, therefore the patient was referred to a psychologist for psychotherapeutic education before starting the complete denture treatment. The treatment plan presented to the patient ranged from implant supported fixed and removable complete dentures to conventional complete dentures using metallic denture base. After the preliminary investigations and patients written informed consent, routine clinical and laboratory steps were undertaken that included border molding for maxillary (Figure 2A) and mandibular (Figure 2B) residual alveolar arches with tracing compound (Pinnacle, DPI) on special trays (Fortex; Lucite Intl, Durham). Definitive impression of maxillary (Figure 2C) and mandibular arches (Figure 2D) were made using zinc oxide eugenol impression paste (Cavex outline BV, Holland). The metallic denture base for maxillary arch was fabricated on the definitive cast using conventional casting procedures for chrome cobalt base metal alloys (Wiron 99; Bego, Bremen, Germany). The metal denture base was finished, polished (Figure 2E) and tried in the patient following which the complete denture trial was accomplished. The denture was delivered to the patient who was

highly satisfied with the outcome of the complete denture prosthesis (Figure 2F).

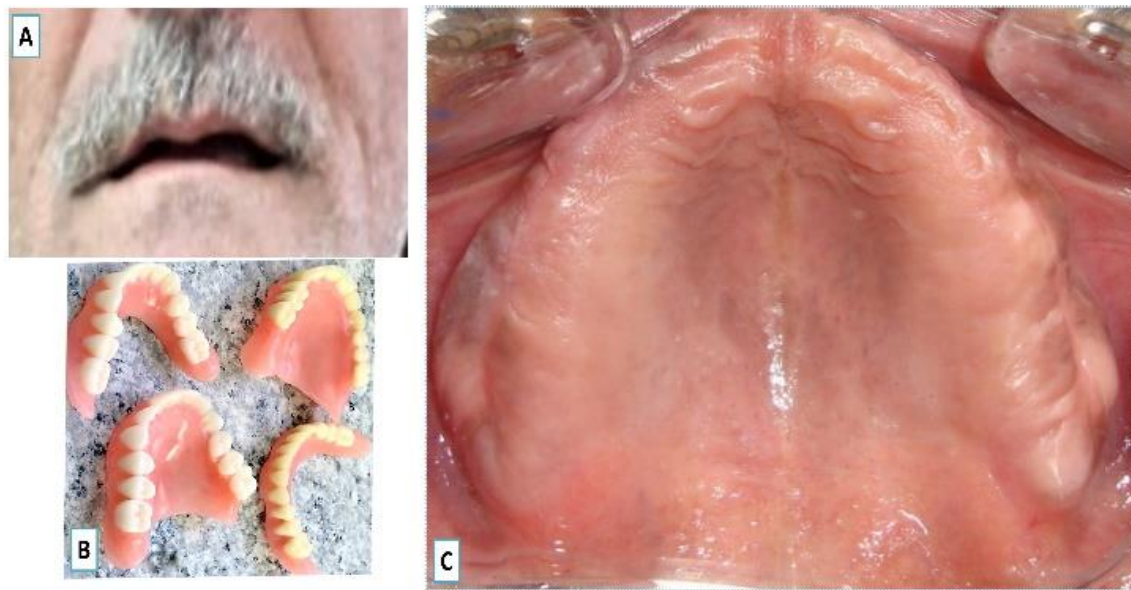


Figure 1: (A) Extra oral view showing an unusually long maxillary lip of the patient obscured deliberately by the growth of thick moustache (B) Two set of previous complete denture prosthesis having fractured flanges and fractured occlusal surfaces of the teeth (C) Intra oral view of maxillary residual alveolar ridges with well formed posterior ridge

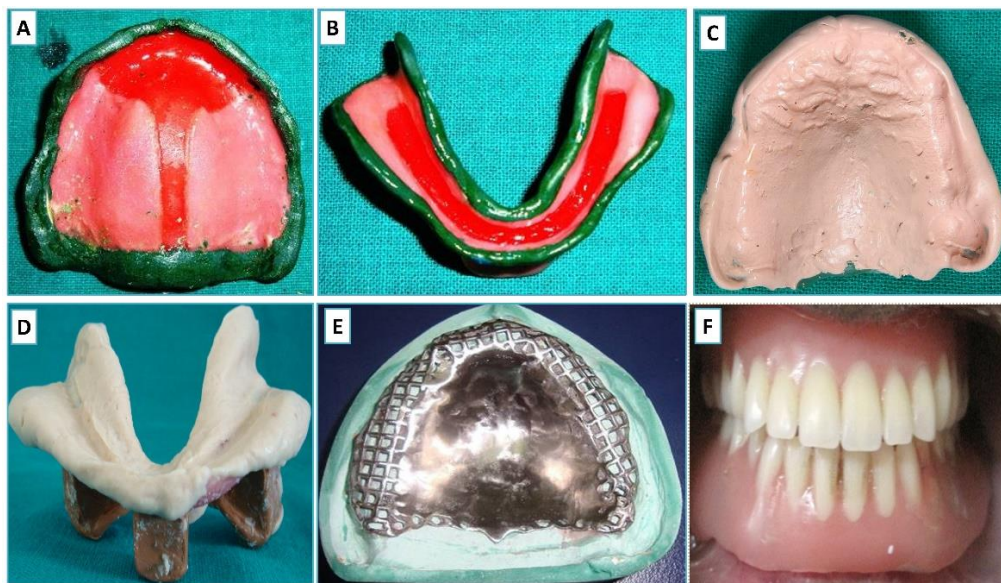


Figure 2: (A) Maxillary custom tray after border molding (B) Mandibular custom tray after border molding (C) Maxillary final impression with zinc oxide eugenol impression paste (D) Mandibular final impression with irreversible hydrocolloid (E) Maxillary metal denture base after finishing and polishing (F) Final maxillary and mandibular complete denture prosthesis in the patients mouth

DISCUSSION

This article presents a case of an elderly male patient who had a history of frequent fractured complete denture prosthesis since last 6 to 7 months. The patient has been completely edentulous since last 4 years but had first made his dentures 6 months back and since then both sets of dentures had evidence of a fracture with or without broken fragments present. The patient was considered to be an ideal case of

receiving a complete denture prosthesis with base metal alloy denture base. However, there was no confirmation that the fracture of dentures was due to extra masticatory forces, poorly fabricated dentures or any other causes [24], [25]. Therefore this case does not fit to be an indication of metal denture base, however if the patient reports multiple and repeated denture fractures irrespective of the cause then metal denture bases are clearly indicated in such cases. Base

metals and its alloys have a higher strength in relation to its volume ratio which makes them even strong in thin sections besides other advantages like thermal conductance, close adaptation, improved retention and better patient acceptance [26]. Frequent complete denture fractures have been mostly reported when complete dentures are opposed by natural dentition and masticatory forces in such cases are centered in and around the midline causing denture fracture [27]. However, the fractures observed in this case were not in the midline but were centered around the flanges of both maxillary and mandibular dentures. In both maxillary dentures, the right side buccal flange and left side labial flange had fractured indicating that the denture had probably fractured after falling on a very hard surface from a distance and fell to the sides of the flange [28]. One of the mandibular denture was fractured on the lingual side while the other had multiple fractured pieces on either lingual and labial side. Several artificial anterior teeth had also fractured in the maxillary denture. Such pattern falls in line when the denture falls from a vertical distance on a hard surface [29]. The fracture of the artificial teeth which usually occurs on the occlusal surfaces of the occlusal table can be reduced by providing occlusal metals which are customised for each individual case [30].

The authors would like to mention that many of the patients' signs elicited by the questionnaire were suggestive of existence of elder abuse in the patient. Most of the questions elicited signs of neglect by the caregivers, in this case being the son of the elder person with whom the patient was living. Elder neglect is the most common form of the neglect found across multiple studies [12], [14], [15], [31]. Few things are significant in diagnosing the condition of the patient, one is to rule out depression and the second is to rule out self neglect. Dental neglect is wilful patients' failure to seek treatment [32] and is found even in normal patients with no history of depression or neglect from family members [33], [34]. Depression is common in patients who are suffering from abuse especially neglect, and has been assigned to poor treatment compliance among denture patients with increased denture plaque index scores observed in subjects suffering from elder neglect [35].

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Conflict Of Interest: None

REFERENCES

- Cohen S. Social relationships and health. *American psychologist*. 2004;59(8):676.
- Rafal RD. Neglect. *Current Opinion in Neurobiology*. 1994;4(2):231-6.
- Mattoo KA, Moaleem M, Shubayr M. Assessing the validity and reliability of a questionnaire to identify existence of parental neglect in terms of developing
- feeding style and social activity in obese adult saudi population. *JMSCR* 2018;6(4):377-83
- Liang BA, Macfarlane WL. Murder by omission: Child abuse and the passive parent. *Harv. J. on Legis..* 1999;36:397.
- Cooper C, Selwood A, Livingston G. The prevalence of elder abuse and neglect: a systematic review. *Age and ageing*. 2008;37(2):151-60.
- Shubayr MA, Mattoo KA. Parental neglect of feeding in obese individuals:A review of scientific evidence and its application among saudi population. *Saudi Med J* 2020;41(5):451-458
- Dowland S. Family values and the rise of the Christian right. University of Pennsylvania Press; 2015 Oct 20.
- Nagaraj K, Mattoo KA, Brar A. Self-Neglect associated with a patient having oral cancer. *JMSCR* 2014 ;2(10):2543-46
- United States Census Bureau: An Aging World: 2015. In: *An Aging World: 2001*. Edited by Kebin K, Victoria AV, vol. 2021. US: US Department of Commerce; 2001.
- World Health Organisation. (2021). Ageing.
- Afshar S, Roderick PJ, Kowal P, et al. Multimorbidity and the inequalities of global ageing: a cross-sectional study of 28 countries using the World Health Surveys. *BMC Public Health* 2015, 15(1):776.
- Mattoo KA, Shalabh K, Khan A. Prevalence of elder abuse among completely edentulous patients seeking complete denture prosthesis – A survey. *J Indian Acad Geriatr*. 2009; 5(4):177-180
- Gorman M. Development and the rights of older people. In *The ageing and development report 2017* Jul 28 (pp. 3-21). Routledge.
- Quinn MJ, Tomita SK. Elder abuse and neglect: Causes, diagnosis, and interventional strategies. Springer Publishing Company; 1997 Jun 28.
- Mattoo KA, Garg R, Dhingra S. Classifying elder abuse – A review. *Gerontology and Geriatric Research*. 2019; 2(1):118
- Dong X. Medical implications of elder abuse and neglect. *Clinics in geriatric medicine*. 2005;21(2):293-313.
- Mattoo KA, Shalabh K, Khan A. Geriatric forensics: A dentist's perspective and contribution to identify existence of elder abuse among his patients. *Journal Of Forensic Dental Sciences*. 2010 Jul;2(2):81.
- Burnes D, MacNeil A, Nowaczynski A, et al. A scoping review of outcomes in elder abuse intervention research: The current landscape and where to go next. *Aggression and Violent Behavior*. 2021;57:101476.
- Ayalon L, Lev S, Green O, Nevo U. A systematic review and meta-analysis of interventions designed to prevent or stop elder maltreatment. *Age and Ageing*. 2016 Mar 1;45(2):216-27.
- Mattoo K, Garg R, Singh V. A Brief Review of Current Interventions in Elder Abuse and Neglect. *American Journal of Medical Case Reports*. 2023;11(5):90-4.
- Alqarni MA, Mattoo K, Dhingra S, et al. Sensitizing family caregivers to influence treatment compliance among elderly neglected patients—a 2-year longitudinal study outcome in completely edentulous patients. *Healthcare* 2021; 9: 533.
- Mattoo KA, Garg R, Kumar S. Geriatric forensics – part 2: Prevalence of elder abuse and their potential forensic markers among medical and dental patients. *Journal of Forensic Dental Sciences* 2015; 7(3):201-06

23. Kottwitz D, Bowling S. A pilot study of the elder abuse questionnaire. *Kansas Nurse*. 2003;78(7):4.
24. Ray PK, Makhil M, Sen SK. Incidence and causes of fracture of acrylic resin complete denture. *Journal of Evolution of Medical and Dental Sciences*. 2014;3(69):14787-94.
25. Alt V, Hannig M, Wöstmann B, Balkenhol M. Fracture strength of temporary fixed partial dentures: CAD/CAM versus directly fabricated restorations. *Dental materials*. 2011;27(4):339-47.
26. Yunus N, Goswami R, Mattoo K. Single Maxillary Complete Denture against Natural Dentition–Influence of the Palatal Vault of Selection of a Metal Denture Base. *American Journal of Medical Case Reports*. 2022;10(10):277-82.
27. Gaba N, Mattoo KA, Daghiri S. Base Metal Denture Bases–Clinical indications. *American Journal of Medical Case Reports*. 2022;10(3):59-63.
28. Kumari R, Bala S. Assessment of cases of complete denture fracture. *Journal of Pharmacy and Bioallied Sciences*. 2021;13(Suppl 2):S1558-60.
29. Jain H, Nagpal M, Narayanan S, et al. Conventional tooth supported overdenture with metal reinforced opposing complete denture: A Case report. *J Dent Specialities*. 2017;5(1):82-5.
30. Mattoo KA, Mahajan P. Increasing the durability of food platform area in complete denture prosthesis: A clinical case report. *Int J Dent Med Res*, 2014; 1(4):56-60
31. Dyer CB. Neglect assessment in elderly persons. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*. 2005;60(8):1000-1.
32. Mattoo KA, Gupta I, Darraj A, RA MG. Parental Neglect in Early Childhood Emerging to Adulthood Self-neglect. *American Journal of Medical Case Reports*. 2022;10(5):131-7.
33. Dong X, Simon MA, Odwazny R, Gorbien M. Depression and elder abuse and neglect among a community-dwelling Chinese elderly population. *Journal of elder abuse & neglect*. 2008;20(1):25-41.
34. Dyer CB, Pavlik VN, Murphy KP, et al. The high prevalence of depression and dementia in elder abuse or neglect. *Journal of the American Geriatrics Society*. 2000;48(2):205-8.
35. Garg R, Mattoo KA, Dhingra S. Comparative clinical evaluation of elder abuse impact upon prosthesis maintenance in geriatric patients. *Gerontology And Geriatric Research* 2019; 2(1):119.