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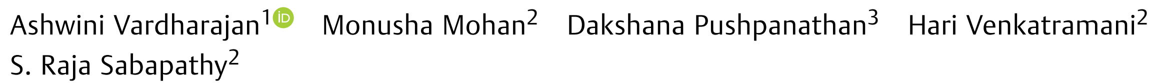

Replantation of an Amputated Hand at Wrist Level Due to Self-Mutilation: Considerations in Management

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Abstract

Major self-mutilations include injury to limbs, eyes, or genitals due to various psychiatric illnesses. Limb amputations are grievous injuries that radically decrease the quality of life. Controversy exists as to the advisability of replantation of the self-amputated limb. We report a case of self-amputation of the hand in a 54-year-old gentleman in a fit of psychosis. He underwent replantation of the hand and was given timely psychiatric help. Interdisciplinary management helped in improving the mood of the patient and he cooperated well with the rehabilitation schedule. Recent literature encourages surgeons to replant the limb and treat the mental illness with close observation for warning signs. We conclude that replantation along with early initiation of psychiatry treatment can help the patient overcome psychosis, realize the implications of his actions, and provide the motivation to perform physiotherapy to achieve the optimum outcome possible in the replanted hand.

Keywords
- ► major self-mutilation
- ► replantation
- ► psychiatry

Introduction

Self-mutilation can be minor or major. Major mutilations like injuries to the limbs, eyes, or genitals, are rare and, signify serious mental instability.[1] This injury may be the first episode of psychosis.[2] These patients require proper psychiatric evaluation and immediate treatment. In case of limb amputations, a dilemma exists about the advisability of replantation.[3] Co-operation and motivation of the mentally unstable patient to protect the reattached limb and later, to use it, must be considered before embarking on this elaborate surgery. We present a case of self-amputation of the hand, in a person with no previous psychiatric illness, who benefitted from replantation.

Case Report

A 54-year-old milkman, was admitted, after he purposefully cut off his hand at the wrist with an axe (►**Fig. 1**). The patient was in hypovolemic shock, was resuscitated with intravenous fluids, and followed by an "on arrival supraclavicular block."[4] Patient's daughter gave the history, mechanism of injury, and the reason for self-mutilation. Condition of the patient and ideal plan of treatment-replantation of the hand were explained to the relatives. As the patient was not in a state to make the decision for replantation, consent was obtained from his daughter. It was an oblique amputation through the carpus on the ulnar side extending to the radius. Post debridement, wrist arthrodesis was done. Tendons were

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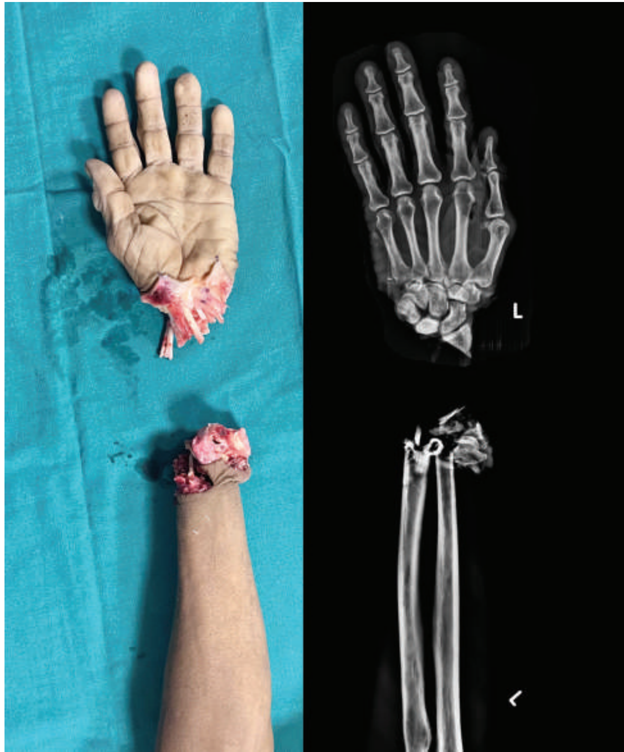

Fig. 1 Clinical picture of the amputated left hand at the wrist level with the radiograph at presentation.

repaired with four strand modified Kessler sutures with circumferential coaptation sutures. Radial and ulnar arteries, their venae comitantes and cephalic vein, and median and ulnar nerves were repaired.

Psychiatric evaluation revealed that our patient's symptoms were precipitated by the news that his sister-in-law had terminal cancer. This evoked guilt in the patient. He developed insomnia, progressing to psychosis, with voices telling him to cut himself, eventually leading to the self-mutilation. A diagnosis of major depressive disorder with psychotic symptoms was made. Patient was started on escitalopram for depression, quetiapine for insomnia and psychotic symptoms, and was advised to continue the medication for 6 months, as this was a first-time diagnosis. He had a dramatic improvement in mood, realized the implications of his act, felt guilty, and, expressed gratitude for the surgery.

Patient was kept under regular follow-up for physiotherapy and psychiatric treatment. At 4 months, he had achieved good flexion of the fingers with grip strength powerful enough to resist passive resistance, and extension of fingers with the help of a dorsal outrigger splint. (►**Fig. 2**). The Disabilities of the Arm, Shoulder and Hand (DASH) score was 40. He is currently under our psychiatrist's follow-up, with adequate treatment adherence. At 7 months, the patient is in full remission according to the current mental status examination. He can take care of himself independently, ride a motorcycle to work, and drop his daughter at her workplace.

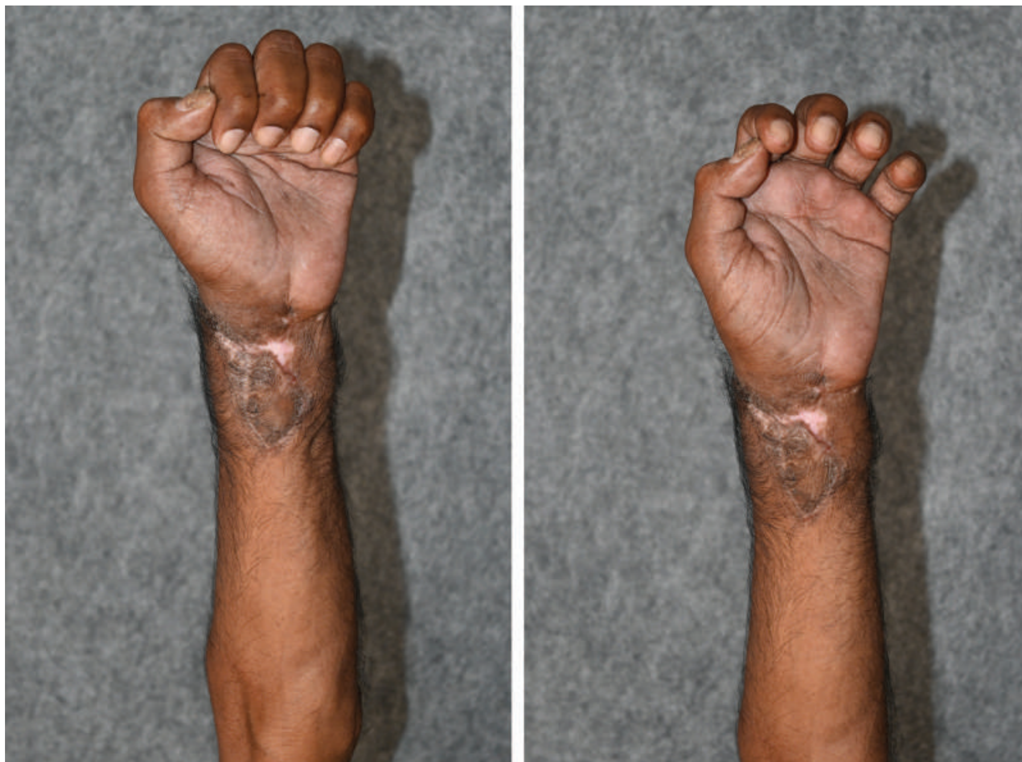

Fig. 2 Replanted left hand showing range of flexion and extension of fingers at 4 months followup.

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Though he remains highly motivated, he is kept on close follow-up and regular therapy.

Discussion

Self-mutilations can be devastating injuries for the patient as well as their families, and can be a tricky problem for treating doctors. The surgeon should take the right decision in such a stressful situation, with empathy toward the patient. Frequently, the relatives are unaware of the patient's mental instability and are thrown into a state of confusion facing two serious problems, the physical and psychological. The surgeon must not hesitate in seeking help from the psychiatric department in the course of management.[5]

Obtaining an informed consent from the patient is difficult in a trauma situation, especially during resuscitation efforts.[1] It is all the more impossible in patients who are apathetic, psychotic, or depressive.[1] In our case, we took the consent from the patient's immediate relatives. In an article on management considerations in self-limb amputations, Van Bezooyen et al advise fellow psychiatrists to encourage the surgical team to do replantation, if the patient lacks the decision-making capacity.[6]

Another clinical problem is being unsure of how the patient will react to the surgery postoperatively. The response in patients who have carried out self-mutilation with a definite suicidal intention and those, in a fit of psychosis, is different.[3] Psychotic patients are unaware of what prompted them to perform the action. They exhibit guilt afterward and show motivation to overcome the physical disability. They respond quicker to psychiatric treatment, while depressive patients with suicidal wish require prolonged management and may not accept the surgery.[3] It is difficult to categorize the patient at the time of presentation. Since time to surgery is critical after amputation, replantation may have to be carried out without the benefit of this differential diagnosis.

Literature on self-mutilating injuries to the limbs is scarce. A review done on 16 limb amputations, over a span of 53 years (1975–2018), reported that only 10 limbs were replanted.[3,7–10] These 10 patients had a diagnosis ranging from psychosis, depression to schizophrenia. Eight patients had satisfactory outcomes, though three showed poor/partial compliance and one was noncompliant. Some did not accept the replanted hand and some regretted the surgery. Thus, the surgeons had reservations about replantation. In a review on 189 cases of major self-mutilation, authors state that limb replantation can be performed and that repeated self-mutilation is uncommon.[2] In our case, we decided to go ahead with replantation and our decision is supported by literature.

Psychiatric management is as important as the replantation itself in the management of these patients. Longitudinal follow-up with close observation for warning signs of self-harm and continued psychiatric rehabilitation are strongly advised. Low incidence of repeat events has been postulated to be due to early intervention, treatment effect, increased observation by immediate contacts, and alternative medical explanation for the symptoms.[2,6]

Conclusion

Our case stresses the significance of initiating early psychiatric treatment in patients with self-mutilation injuries and go ahead with replantation. In limb amputations, the surgical decision must be made before seeking psychiatric help. This leaves the surgeon with a responsibility to manage the patient in a way that would give him or her the best quality of life while accepting the possibility that the decision to replant can go wrong. Replantation in patients who self-amputate their hands in a fit of psychosis can yield good outcomes if followed up with immediate and appropriate psychiatric therapy.

Authors' Contributions
All authors were involved in the clinical care of this patient, the design and conception of this paper, and the writing and revising process.

Ethics Approval Statement
This study was exempt from institutional board review per our institutional policy on small case reports. Our study was performed in accordance with and conforming to the Declaration of Helsinki.

Conflict of Interest
None declared.

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