

## Salvaging a Psycho-Flexed Hand

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### Abstract

A 35 years old lady presented with clenched fist with the background of a psychiatric symptoms. Examination revealed psychotic features with predominant negative symptoms and secondary contracture of left hand. Presumptive diagnosis of psycho-flexed hand was made and referred to department of Psychiatric and Neurological Rehabilitation. Manipulation under anesthesia, corrective casting, splinting, local electrotherapy, physiotherapy and occupational therapy are established methods of managing contractures in rehabilitation medicine. When contractures of hands are identified in patients with psychiatric illness, same principles can be utilized and can be managed effectively by combined and co-coordinated efforts of a multidisciplinary team.

**Key words:** contracture, hand, psycho-flexed, psychosis, rehabilitation

### Introduction

The term "Psycho-flexed hand" was coined by Frykman et al <sup>1</sup> in 1983 when they reported few cases of hand deformities in patients with psychiatric illness. To our knowledge there are very few similar reports in literature. We report a rare case <sup>1,2</sup> of hand deformity secondary to psychosis, and discuss management approach to salvage her hand.

### Case Report

A 35 years old married lady presented with complaints of clenched fist bilaterally and swelling of both hands of 4-week duration. She also had disruption of sleep, reduced appetite and decreased self-care for 6-8 weeks, muttering to self for 2 years, and suspicious behavior and fearfulness for last 2-3 years. She was a housewife from a rural background with no formal education with well adjusted pre-morbid personality. She was poorly kempt, did not make eye-to-eye contact, was continuously muttering to self and had fisting of both hands. She exhibited active negativism, apathetic behavior and restricted affect. Formal assessment of speech, mood, thought and

perceptual abnormalities could not be carried out due limited participation by the patient for detailed examination. She was referred to the department of psychiatric and neurological rehabilitation for evaluation and management of the hand deformity. Examination revealed both hands in fisted position but intermittent opening of right hand. There was no evidence of spasticity or dystonia. The left hand had swelling, pitting edema, foul smelling discharge, tenderness on palpation and raised temperature. She resisted opening of the left hand and on forceful opening revealed crusting and fissuring of web spaces and contractures at metacarpo-phalangeal (MCP), proximal (PIP) and distal inter-phalangeal (DIP) joints of all four fingers and adduction contracture of thumb (Figure 1). Bunnel- Littler testing suggested tightness primarily of the intrinsic muscles of hand and capsule of MCP and PIP joints. Long finger flexors were also tight.

Presumptive diagnosis of schizophrenia with predominant negative symptoms and secondary contracture of hand was made. There was no evidence of dystonia or fracture. Abnormal posturing of hand was considered a part of the psychopathology as relatives gave history of patient holding a leaf in her hand and telling that it was her treasure and thereby would not open her hand. The swollen, tender hand with contractures had features

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**Fig 1.** Sequence of events: Clenched fist with contracture (At presentation), wrist cock up cast, hand opening with dynamic contracture at metacarpophalangeal and interphalangeal joints (At cast removal), and full range of motion at all joints of hand (At discharge)

suggestive of cellulitis along with secondary deformity due to prolonged closed fist position. Her hemogram revealed: haemoglobin -11.9 gm%, total leukocyte count 8100/cumm, polymorphs-64%, lymphocytes-34%, and eosinophils-2%, ESR-45 mm after 1hr, and platelets-3,56,000/cumm. Serum chemistry showed reduced total proteins of 5.9 gm/dl (N> 6.5gm/dl) and low albumin of 3.1gm/dl (N>3.5gm/dl) suggestive of poor nutrition. Rests of the biochemical parameters were within normal range. Rheumatoid factor and antinuclear antibodies were absent. X-ray of both wrists and hands didn't show any abnormality.

Antipsychotic medications were started (Tab. Risperidone upto 6mg and Tab Lorazepam upto 4mg per day). Local dressing and wound cleansing was tried through the side of the closed left hand along with oral antibiotics (Tab. Ampicillin 250 mg + Tab Cloxacillin 250 mg thrice daily) and anti-inflammatory agents (Tab. Diclofenac sodium 50 mg + Tab Serratiopeptidase 10 mg thrice daily). After ten days of antipsychotics, antibiotics, and anti-inflammatory medications she still did not open her left hand and required examination under sedation. There was improvement in skin condition but had significant tightness of intrinsic muscles and capsule of MP and PIP joints and long finger and wrist flexors. A cock - up wrist cast was applied: wrist in 30 degrees of extension, thumb in abduction, MP joints in flexion and PIP and DIP joints in extension (Figure1) but due to inadequate relaxation, full correction could not be achieved. The objective was to keep the hand in functional position and to stretch the tight intrinsic muscles of hand, wrist and finger flexors. The cast was changed after one week. The second cast was applied under general anesthesia to get adequate muscle relaxation. The skin condition had improved further with healing of fissures and no evidence of foul smell or discharge. She still had tightness of intrinsic muscles and capsule but long flexors were stretchable. Cast was reapplied in maximally corrected position.

Her psychotic symptoms improved only minimally and therefore four days after the application of second cast, Electro Convulsive Therapy (ECT) was started. After two ECT sessions, she had distinct improvement in psychotic symptoms. A total of seven sessions of ECT were given over a period of one month. Considering improvement in her negative symptoms and improved self-care, the second cast was removed after two weeks and showed normal range of motion at wrist and MP joints but reduced at PIP and DIP joints (Figure1). The tight muscles at these joints were stretchable, suggestive of dynamic contracture of intrinsic muscles along with residual capsular tightness. Paraffin (wax) bath was started along with passive mobilization of the PIP and

DIP joints, active range of motion exercises for wrist and MP joints and active usage of left hand in performing activities of daily living. After six weeks of inpatient, care she was discharged with no active psychopathology and full range of motion at all joints of left hand (Figure1). She was recommended a home-based exercise program and anti-psychotic medication.

## Discussion

Frykman et al<sup>1</sup> described five patients with psychiatric illness (long-term depression, hypochondriasis, and/or schizophrenia) with contractures in hand. Since no organic basis could be identified in those patients, the authors coined the term “psycho-flexed hand” to describe that condition. Hand deformity in patients with psychiatric illness can be secondary to trauma, arthritis, congenital anomaly<sup>3</sup>, focal myotonia<sup>4</sup>, primary conversion disorder<sup>5</sup>, clenched fist syndrome<sup>6</sup>, psychogenic spastic hand<sup>7</sup> or as a part of the active psychopathology<sup>1</sup>. The most conspicuous primary neurological abnormalities in schizophrenic patients were motor coordination problems and involuntary movements<sup>8</sup>.

There were no features suggestive of congenital anomaly, arthritis or focal myotonia. Contractures of the hand are rather uncommon conversion phenomenon. She had a well-adjusted pre-morbid personality with no features of conversion disorder. “Clenched fist syndrome” is an entity in which the patient keeps one or both hands tightly clenched. It usually follows a minor inciting incident and is associated with swelling, pain, and paradoxical stiffness. No organic disease can be found and extension of the fingers is always possible under anesthesia. Psychiatrically the patient is classified as having severe anger and poor defense. The prognosis is poor<sup>6</sup>. The diagnosis of psychogenic spasm of the hand is a diagnosis of exclusion that requires a multidisciplinary team<sup>7</sup>.

In our case, the primary pathology in the development of the hand contracture (keeping the hand in fist position) was psychosis (an abnormal belief/delusion that she is holding her treasure in the closed hand and would lose that on opening the hand). The persistent fist position of the left hand leads to poor local hygiene and secondary infection which secondarily contributed in the development of the contracture.

Manipulation under anesthesia, corrective casting and splinting are established methods of managing

contractures in rehabilitation medicine like in rheumatoid arthritis and Alzheimer’s disease<sup>2,9,10</sup>. The same principle can be utilized in managing secondary contractures of hand in patients with psychiatric diseases. Initially antibiotics and anti-inflammatory medications were given to reduce infection, pain and swelling. Following that corrective cast was applied to maintain the functional position of wrist and hand. Antipsychotic agents and ECT were given to control the primary pathology. Once she was amenable to therapy due to reduction in the symptomatology, cast was removed and passive therapy and paraffin bath were started to stretch the tight muscles. Measurement of wrist cock up splint was taken at that time of second cast application but due to significant reduction in the psychopathology and active participation in the management, eventually it was not required. Gradually, active therapy was started along with promotion of using left hand in performing activities of daily living.

Manipulation under anesthesia, corrective casting, splinting, exercises and positioning are established methods of managing contractures in rehabilitation medicine. When contractures of hands are identified in patients with psychiatric illness, same principles can be utilized to effectively treat it.

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