

A Study of Improvement of Hand Function in Post Colles' Fracture Cases by Occupational Therapy

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Colles' fracture treated by conventional methods of reduction and POP immobilisation disturbs the hand function by its commonest complication as stiffness of wrist and small joints of hand, Sudeck's Osteodystrophy and rarely V.I.C. In order to get a functioning hand, hot paraffin bath and occupational therapy were chosen to overcome stiffness and to improve the functions. Instead of monotonous regular hand exercises in crowded gymnasium which was not liked by most of the aged patients, the trial was made with occupational therapy.

MATERIAL AND METHODS

Twentyfive cases were chosen from the out patients department of School of Physical Medicine, Seth Sukhlal Karnani Memorial Hospital, Calcutta in the year 1987.

After taking detailed clinical history, the assessment was done according to (1) Functional and Neurological assessments; (2) Activities of daily living; (3) Joint range.

These assessments were done on the first day of examination, after 3 weeks and 6 weeks of getting therapy and during therapy light work had been advised and after 6 weeks heavy works were allowed. In female patients. light household works were allowed from the beginning but most of them were resistant.

As pain and stiffness were most important

amongst complaints, paraffin bath was given just before starting of occupational therapy daily.

The different modelities of occupational therapy were given under the guidance of an expert occupational therapist like :

1. To increase strength : Grip exerciser, Gym-kit-board, playing with plasti-Doh or plasticin, directing patients to squeeze clothes at first dry and then wet, to knead for making chapatis, to grind spices with stone grinder, specially for the housewives.

2. To increase range of different joints and to increase the ability of work of precision : Wrist Circumductors, Pronation-Supination devices, Peg boards—big and small board with round and square pegs, Multishaped knob board, posting box, Nesting jars for gradual coning of fingers and to increase co-ordination, spoke shave, Basket making with cane, Thread weaving, Hand printing machines were used.

3. To develop muscle re-education : Typing is used to improve co-ordination and subsequently to develop strength of specific hand muscles.

As in learning to type, the practice exercises are built first on letter drill, then on individual words, then on phrases and finally paragraphs. These exercises are formed according to the muscles to be exercised, rather than related to the learning of the keyboard, e.g.

¹R.M.O. Cum Clinical Tutor.

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Lumbricals of Lt Rt
 ↓ ↓
 F D S A J K L
 ↓ ↓
 Fifty Jump
 Depend Knock
 Scales Little
 Antenna

OBSERVATIONS AND DISCUSSION

Out of 25 patients 48% were male and 52% were female; 52% came from the age group of 41-60 years; predominant hand (Right) was affected in 48% of cases and one person had affection of both hands.

All the cases had stiffness of hand, malunion were present in 48% of cases; 4% had Sudeck's Osteodystrophy and only one patient had Volkman's ischaemic contracture. In 20% of cases, other associated problems were present.

The hand function was assessed with the standard parameters (Yadav & Verma and, Wynn Parry C. B. & Ronald Merae, loc. cit) except the grip strength, which was measured clinically by comparing with the normal hand. Hot paraffin bath was given to all patients.

One case had V. I. C. following, tight plaster. He was having gross flexor muscles contracture and showed no response to our nature of treatment and was finally referred to Plastic Surgery department.

Another case, 55 years, female housewife, showed typical features of pain, swelling and stiffness in wrist and fingers with shiny skin and gross osteoporosis in X-rays, following removal of plaster cast, did not respond to hot paraffin bath and occupational therapy as she was very much reluctant to occupational therapy due to her fear for pain and low intelligence as regarding following of instructions. This case was given a course of oral steroid therapy for 3 weeks and occupational therapy for another 6 weeks. She, after 12 weeks of therapy, imp-

proved her hand function to "Fair" from "Poor" performance.

Table I. Showing clinical improvements according to functional and neurological assessment

	Before therapy	After therapy
I. Prehension:		
Excellent	0	12
Good	6	7
Fair	8	4
Poor	11	2
II. Sensory:		
	2	Nil
III. Motor:		
Excellent	0	12
Good	0	7
Fair	6	4
Poor	19	2
IV. Autonomic:		
	Nil	Nil
V. Steriognosis Power Retained in		
	25	25

Table II. Showing clinical improvement according to activities of daily living

	Before therapy	After therapy
I. Washing and Toilet:		
Excellent	0	12
Good	3	7
Fair	5	4
Poor	17	2
II. Dressing and Undressing:		
Excellent	0	12
Good	5	7
Fair	4	4
Poor	16	2
III. Communication:		
Excellent	0	14
Good	5	6
Fair	3	3
Poor	17	2
IV. General:		
Excellent	0	12
Good	5	7
Fair	4	4
Poor	16	2

Table III. Showing clinical improvements according to joint range

	Range	Before therapy	After therapy
I. Shoulder joint:			
	100%	22	24
	76-99%	1	1
	51-75%	1	0
	Below 50%	1	0
II. Elbow joint:			
	100%	22	23
	76-99%	1	0
	51-75%	0	1
	Below 50%	2	1
III. Forearm movements:			
	76-100%	15	19
	51-75%	6	5
	26-50%	4	1
IV. Wrist joint:			
	76-100%	2	9
	51-75%	6	10
	26-50%	11	4
	1-25%	6	2
V. Thumb movements:			
	76-100%	21	24
	51-75%	2	1
	26-50%	0	0
	1-25%	2	0
VI. Finger movements:			
	76-100%	19	23
	51-75%	5	1
	26-50%	0	0
	1-25%	1	1

It was seen in almost all the patients, stiffness of hand and wrist was the chief complaint. On detailed interrogation some answered they were not told to do movements of fingers, elbow and shoulder and some told that they

were instructed but, sheer out of fear, they did not do them properly and the end result was stiffness. This correlates with the literature (Wynn Parry C. B.—loc. cit).

CONCLUSIONS

25 cases were chosen from O. P. D. of S. P. M., S. S. K. M. Hospital, Calcutta in 1987. They were assessed with standard parameters on first day of arrival, 3 week and 6 weeks after therapy with hot paraffin bath and occupational therapy and following conclusions are drawn:—

1. Higher the age group lesser were the performance.
2. Lesser 'Excellent' results in female.
3. Prolonged and Improper plaster casting resulted in more complications and lesser 'Excellent' result.
4. Low intelligence of patient as in following proper directions gave 'poor' result.
5. Presence of complications—complicated returning to normal hand function.
6. Patients got better motivation in performing occupational therapy with a joy of creating something rather than performing boring exercise programme in gymnasium.
7. They felt psychologically boosted up.
8. Reablement of patients and finally Resettlement in their previous occupations were possible in higher percentage of cases.
9. The great achievements were to resettle an artist with his painting brushes and the patient, with Colles' fracture of both hands, in front of the typewriter machine with a smiling face.

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