

## Clinical study on task specific dystonia among beedi workers

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### Abstract

Task specific dystonia is a form of isolated focal dystonia with a peculiarity of being displayed only during performance of specific skilled motor task. This distinctive makes task specific dystonia a particularly mysterious and fascinating neurological condition.

Beedi is a traditional method of smoking tobacco otherwise called as Indian cigarette. It is a thin cigarette or mini cigar filled with Tobacco flakes and commonly wrapped in tendu leaves. Beedi manufacturing is a traditional agro-forest based industry in India, highly labour intensing and predominantly unorganized beedi industry is one of the largest employers of workers in India after Agriculture, handloom and construction. The government estimates about the millions workers in the rolling Industry.<sup>1</sup> In this clinical study we are describing few types of task specific gystonia among the beedi workers.

**Keywords:** Task specific hand dystonia, Professional beedi workers.

### Introduction

Dystonia refers to syndrome of involuntary sustained or spasmodic muscle contractions involving co-contraction of agonist and antagonists. The term Focal refers to a type of dystonia that affects single part of the body such as hand or leg. Task specific dystonia is a movement disorder, that interferes with the performance of particular task, that involve highly skilled movements such as writing, playing, music instrument, typing.

Task specific dystonia associated with beedi workers has not been reported.

A beedi is a thin Indian cigarette, filled with Tobacco flake and wrapped in tendu leave tied with a string at one end. Beedi industry is present in all the state of India, west Bengal and Tamil nadu are the largest beedi making states in India.

Two types of workers in beedi industry

1. Beedi makers- who make the beedi by placing the tobacco flakes in tendu leaf and rolling the leave with both hands and both ends are closed with stingers, with a string at one end.
2. Beedi bundlers-20 beedis wrapped with a small piece of wrapper embossed with the trade mark is pasted at one end and packed.

### Case 1

35 year female presents to out-patient department of medicine with history of difficulty in making beedis for 5 years. She gives the history of involuntary extension of both thumb and index finger of right hand while making beedi. The abnormal posturing involves flexion at inter phalangeal joint and extension at metacarpo-phalangeal joint of right thumb and index finger. This difficulty appear specifically only during making beedi. It is not present during the day to day activities. There was no history of pain, paraesthesia, and weakness in Right hand. Her neurological

examination and nerve conduction studies were within normal limits.

### Case 2

30 Years female presenting with the history of difficulty in rolling leaves between the fingers while beedi making. On examination, during beedi making process, there is an involuntary extension of right index finger at inters phalangeal and metacarpal phalangeal joints. No such involuntary extension observed in the voluntary activities. Her neurological examination was within normal limits.

### Case 3

55 Years old male, presenting with the complaints of difficulty in bundling the beedis with the right hand while beedi bundling process This difficulty is not present in other day to day activities. Examination during beedi bundling revealed involuntary extension of interphalangeal joints and extension at wrist. His neurological examination and nerve conduction studies were within normal limits.

### Discussion

Task specific dystonia's are primary focal dystonia characterised by excessive muscle contraction producing abnormal postures during selective motor activities that often involves highly skilled repetitive movements. The common known task dystonia's are Writer's cramp, cashier's cramp, typist cramp, Player's cramp, hair dresser dystonia, tailor's cramp and embouchure dystonia.<sup>2</sup>

Symptoms may begin with a lack of dexterity during the performance of specific motor task with the increasing abnormal posturing of the involved body part. As motor activity continues, neurological examination is within normal limits.

The aetiology of task specific dystonia remains unknown, although recent evidences suggest that both genetic and environmental factors are important.<sup>3</sup> The pathophysiology of task specific dystonia has been linked to abnormalities in inhibition, plasticity and motor network.<sup>4</sup>

Neurophysiological study of patients with task specific dystonia shows that simultaneous activities of agonist and antagonist muscles (co-contraction)<sup>5</sup> and activation of muscles usually not involved in the task.

Task specific dystonia among beedi workers are not frequently reported in literature. Only one case of beedi worker dystonia has been reported in literature.<sup>6</sup> Beedi making process involves highly skilled repetitive movements of thumb and fingers for rolling tendu leaves and tying it with thread at one end. The same type of repetitive movements also involved in beedi bundling process- beedi bundler's dystonia.

All three of our patient's symptoms improved with trihexyphenidyl administration. Pharmacological treatment includes Anti cholinergic, dopaminergic, GABAergic medications with inconsistent results. Botulinum toxin injection is the usually effective treatment.

## Conclusion

Focal task specific dystonia's are group of movement disorder characterised by aberrant motor activation during the performance of specific, often over practised activity. Beedi workers have to do highly skilled movements of thumb and fingers provide ground for same pathophysiology. As in other types of Task specific dystonia, oral medications have been beneficial in some of the patients.

## References

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