Case report

Frontal Lobe Syndrome- A case report

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Abstract:
A 45 year old male, presented with recurrent outbursts of aggression, disinhibited behavior, altered speech, and suspiciousness following a head injury, sustained after a fall from a flight of stairs, under intoxication. He had undue suspiciousness over his wife for an extra marital affair. His premorbid personality was described as authoritative, organized, cheerful and helpful. Cognitive functions were intact. Physical and detailed neurological examination was essentially normal. He lacked insight into his problems. This case illustrates the need for a multidisciplinary approach to the assessment, management and rehabilitation of such cases.

Keywords: Disinhibited behavior, Frontal lobe syndrome, Jocularity, Dysexecutive syndrome

Introduction:
Frontal lobe is the phylogenetically most developed part of the brain and lies anterior to the central sulcus or the rolandic fissure. General functions of frontal lobe include planning, programming and execution of motor action, motivation, inhibition of impulses, social behavior, motor speech, judgment and abstract ability, insight, working Memory. Frontal lobe syndromes arise after injury to specific parts of the frontal lobe. Most of them manifest as executive dysfunction or personality changes. Phineas Gage, a rail worker who sustained a frontal lobe injury by penetrating iron rod is considered the classical example for frontal lobe syndromes.

Case report:
A patient was brought to the Psychiatry OPD by his brother with complaints of altered behavior inappropriate talk, disinhibited behavior and undue suspiciousness for the past 6 months. The symptoms were acute in onset following a head trauma. Patient was under intoxication with alcohol when he had a fall from the stairs. He sustained a head injury followed by loss of consciousness for around half an hour. This was followed by bouts of vomiting, irrelevant speech, drowsiness and reduced activity. He was taken to a government hospital (JIPMER) after 5 days. There he was advised to take a CT Brain plain.
The scan showed resolving right frontal contusion with a small left parietotemporal contusion. No surgical intervention was advised. Patient started to develop alterations and changes in his behavior and personality. Premorbidly, the patient was very well mannered, cheerful, organized and respected personnel in his village with a political background. He was a fatherly figure to the people of his village. However, post-trauma, he began to behave disinhibited noted by incidents such as passing urine in public, using abusive and vulgar comments around women. On one instance, he even physically abused a lady police officer and was taken to the police station, following which his family was notified and he was released on account of his medical condition. Patient would become
excessively agitated for small issues unlike before. Gradually the wife noticed that he was suspicious about her, assuming she had an extra marital affair. Patient’s mode of speech was altered and was often found to be beating around the bush in answer to a question suggestive of circumstantiality. Patient would often crack jokes irrelevantly suggestive of increased jocularity. Patient’s family members were worried if he had developed a mental illness due to which his whole personality was affected and he had transformed into a completely different person.

On examination, patient’s speech was occasionally irrelevant and over-inclusive. The patient even cracked a few jokes during the interview, his memory was intact. The patient was not aware of changes in his behavior. He was started on low dose Risperidone (1 mg). He was asked to come for regular follow up.

The patient reported to OPD irregularly. His relatives reported improvement in behavior. His suspicions regarding his wife were also controlled. Patient was lost on follow up after 3-4 visits.

**Discussion:**

Uchikava et al. correlated, reduced cerebral blood flow to frontal lobe in subarachnoid haemorrhage and dysexecutive syndrome.\(^1\)

Eghwurudjakpor PO et al. state that hypersexuality is a rare but well recognized sequel of brain injury. There is subjective experience of loss of control over sexuality and increased need or intense pressure for sexual gratification. Damage to the orbital parts of the frontal lobes is believed to cause deviant sexual behavior as a result of removal of moral-ethical restraints.\(^2\)

Duffy and Campbell et al. pointed out that injury to the orbitofrontal area gives rise to disinhibition.\(^3\)

The prefrontal cortex of the frontal lobe has three parts:

- **Ventro medial cortex**
- **Orbitofrontal cortex**
- **Dorsolateral cortex**

Orbitofrontal cortex is concerned with response inhibition, emotional lability. The affected patients will have a disinhibited behavior. Thus, in pseudo psychopathic disorder or orbital personality, impulsiveness, jocularity, sexual disinhibition and a complete lack of concern for others is noted. Patients with injury at this location exhibit stimulus-driven behavior with poor impulse control diminished social insight, explosive aggressive outbursts, emotional lability, inappropriate verbal lewdness, distractibility, jocularity and lack of interpersonal sensitivity.\(^3\)

The dorsolateral frontal cortex is concerned with planning, strategy formation and executive function. Patients with dorsolateral frontal lesions tend to have apathy, personality changes, abulia, and lack of ability to plan or to sequence actions or tasks.

The process of recovery following brain injury can roughly be divided into three stages which are characterized by the changing and overlapping patterns of disturbance of sexual behaviors. They include early (acute), middle (post-acute) and late (re-entry) stages.\(^4,5\)

Rommel et al. state that frontal lobe syndrome comprises a variety of different clinical syndromes produced by focal lesions involving the prefrontal cortex. Based on the site of lesion prefrontal lobe dysfunction may be divided into a disorganized type, caused by lesion of the dorsolateral prefrontal lobe and its connections, a disinhibited type that can be observed following lesions of the orbitofrontal cortex, and an apathetic type following lesions affecting the functional balance between the cingulum and the supplementary motor area.\(^6\)

Two main strategies (pharmacologic and non-pharmacologic) are generally adopted in the
management of patients with hypersexual behavior. Non pharmacological methods include psychoeducating the family members about behavioral changes in the patient, psychotherapy, changes in the patient’s environment, cognitive behavioral modification and a multidisciplinary approach for the rehabilitation of such cases. Pharmacological management includes anti-androgenic drugs, SSRI, GnRH analogues and neuroleptic drugs.

**Conclusion:**
Frontal lobe syndromes need to be managed by a multidisciplinary approach, also by creating awareness about the prognosis of the condition, among the family members or caregivers. Recent advances have lead to the development of disease modifying therapies which aim to ameliorate the social and behavioral deficits.

**References:**
4. Limbert J. Head injury and sexuality: A literature review.
5. Blackerby W. Disruption of Sexuality Following a Head Injury.

Figure 1- Plain CT- Brain showing resolving right frontal contusion with a small left parietotemporal contusion.