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PARAMNESIC DELUSIONS FOLLOWING HEAD INJURY

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SUMMARY

Paramnesic delusions are rare psychiatric sequelae after head injury. In a follow-up of 346 patients only three such cases were seen. Case histories of those patients with a follow-up for eighteen months, their clinical features, psychometric evaluations etc. are described, followed by a discussion into their genesis and persistence.

Delusional syndromes in head injury are of different types. Those which occur at the earlier part of recovery are transient and late-onset delusions usually form a part of functional psychoses. Certain delusions which arise during the paramnesic confabulatory states, persist for long periods and are not accompanied by other psychotic disturbances. In a follow-up of 346 cases of head injury, only three such cases were seen.

Case: 1

Mr. K., aged 42 years, suffered a head injury in a road traffic accident. His post-traumatic amnesia was about 6 weeks in duration. He suffered from right hemiparesis and a transient aphasia. During the period of recovery, he expressed his delusion that the doctors had done vasectomy on him when he was unconscious. According to his lay-concept, the injury to the 'vital nerve' had made him both sterile and impotent. The couple had remained childless for the 22 years of marital life and hence, after recovery, he advised his wife to get remarried. Though initially the idea was opposed, his continued normal behaviour and the persistence of the conviction about the vasectomy made others also to share the delusion. His wife got remarried 2 years after the injury. Seen around that time, the delusion was the only abnormality. During the interview, he explained that the absence of the scar was due to the skilled work of the doctors. The nocturnal emissions and the occasional erections were explained as due to the 'escape of a few nerves or their reunion'. During the follow-up, he repeatedly pleaded for re-canalisation surgery. When the doctors disagreed with his version, he attempted a surgical self-cure with a shaving blade. He also had features of secondary depression. His functional restitution was incomplete. Persistence of right hemiparesis and mild aphasic disorder (mostly nominal) prevented the resumption of his original work. He began to work as an aid and live in the fields, spending whatever he earned. His social relations had shrunken. Clinically, apart from the neurological deficits, features of depression and the specific delusions, he had no other abnormality. His judgement, form of thinking and reality

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evaluation were appropriate and adequate. Because of his illiteracy, results of the tests were compared with head injured patients (of equal severity) from similar sociocultural background, and educational achievements. PGI memory tests, Raven's Matrices, Koh's Block design test and abstract-concrete thinking showed that the 'Z' score in each test was within one S.D. from the mean. Bender-Gestalt and word fluency tests as expected showed poor results.

Case: II

Mr.C., aged 28 years, fell down from his moped in a drunken state. He was hospitalised by a passer-by who took care to deposit the valuables with the police outpost in the hospital. Patient had suffered a closed head injury and recovered uneventfully till the fourth day. Then, he began to enquire about the details of his admission. He was irritable and deluded that the tenant of his house was responsible for the injuries. Following a previous altercation with the patient, the tenant had reportedly hired somebody to teach him a lesson. The hospitalisation and the handing over of the jewels were only ploys to detract the police. Though his parents assured him otherwise, he wanted to personally avenge his injuries. His PTA lasted for five days. Soon after the discharge, the parents shifted him to another city. He was reportedly good in his work and interpersonal relations. About a year after the injury, history showed no evidence of any psychiatric morbidity, except the delusion. He rationalised that if the story of the fall were to be true, the moped also should have suffered damages. Lack of such damage was a proof that he had been attacked by others. He did not pursue with the idea of revenge only on the advice of the elders. Patient did not show any abnormality during the mental status examinations, except the delusional conviction about the cause of the injury. Psychometric tests were performed only at the end of one year, because he had not come home in-between. Bender-Gestalt, PGI memory test, Raven's Matrices, Koh's Block and word fluency tests were done and he was able to score well in all the tests. The 'Z' scores in all tests were within one S.D. on the positive side.

Case: III

Mr.M., aged 60 years sustained a closed head injury when his cart was hit by a lorry. He was hospitalised for three weeks. His PTA lasted for about eight weeks. About this time, he began to accuse his wife of stealing all his savings. She had hidden it in some inaccessible place for her future use. When he was explained that the money was spent during the hospital-stay, he denied the hospitalisation. He refused to believe his children and argued that such a serious injury requiring a long hospitalisation should leave behind at least a few scars. He quarrelled with his wife that she always had an eye on his savings. When the neighbours intervened in the quarrel, they were taken as collaboraters. He pleaded that though they might get a share of the money, they should refrain from 'cheating a poor man'. This patient did not show good functional recovery and further deterioration set in about the turn of the year. The delusion was in evidence till then, though, later it could not be elicited. This patient alone received drugs for the management of behaviour disorders. From the onset of delusion, he had received Trifluperazine 15 mgs/day which was raised to 25 mgs/day after 2 weeks along with anti-parkinsonian drugs. Continued usage regularly for about 10 weeks was accompanied by reduced agitation.

But the contents of the delusion were unchanging. Due to financial constraints and lack of change in the morbid belief, the relatives were no more enthusiastic about continuing the drug treatment. Clinical examination during the follow-up showed that he was irritable, emotionally withdrawn and lacking motivation. He showed features of depression that he had been cheated by his own wife. He did not cooperate for a regular follow-up and even when he came, was not willing to do the psychometric tests. Incomplete psychometric evaluation showed that his Bender-Gestalt test and PGI memory test were performed one S.D. below the mean. Scores on Raven's, Koh's block and abstract-concrete tests were not reliable because he did not complete any of these tests and his motivation to do these tests was very low. About 12 months after injury, he began to show a clinical deterioration of his cognitive functions. He did not cooperate for EEG and could not be admitted in the hospital for neuro-radiological examinations.

Discussion

The delusions in the three cases were monosymptomatic and their contents in cases 2 and 3 make them appear as though they were logically reducible beliefs. But, the absolute conviction, non-amenablity to reason, or experience, the unlikely nature of the contents, and the non-sharing of and opposition to the delusional contents by the near relatives point out the delusional nature of the morbid beliefs. As was evident from their arguements, the critical faculties were in the service of the delusions and the delusions had resisted any change for long periods.

Apart from the alcohol addiction in case 2, no other psychiatric abnormality was evident in them prior to the head injury. Their persistence and lack of other psychotic features differentiate them from the delusions of post-traumatic delirium and the functional psychoses respectively. All the delusions were first expressed before the end of the PTA period. Twelve other patients evinced organic delusional syndromes during the subacute phase of recovery. Delusions of persecution, infidelity and reference were the types seen in these patients. None of them centered around events in the amnesic period and all of them disappeared around the end of PTA.

Similar delusions have been described by previous workers (Russel 1969; Whitty and Zangwill 1971). 'Systematized paramnesias' were explained to arise from the confused memory and the confabulatory recall of events in the retrograde amnesia period. But, in our patients the delusions did not involve actual events of the RA or PTA period. Vasectomy in case 1, assault in case 2 and the theft in 3rd case had allegedly happened at a time during which they were amnesic.

The central feature of the genesis of the delusions is the impaired judgement which consists of 'associations acquired through experiences' (Bellak et al. 1973). Organic interference with such associations have been attributed to bilateral damage. Weinstein (1969) attributes it to disruption of cortical - limbic - reticular connections and Cummings (1985) correlates subcortical and left sided disruptions of limbic - cortical associations to the genesis of organic delusions. In the light of recent studies on bio-mechanics of head injury (Ommaya 1985), deeper subcortical dysfunction and diffuse bilateral impairment in our patients is evident. Right hemiparesis with aphasia in case 1 and left

temporal linear fracture in case 2 lateralize the disturbance to the left side. Though such neuroanatomical impairments explain their predilections, the content-specificity is understandable only in psychodynamic terms from their immediate life situation. Vasectomy as a reason for the impotence in case 1, assault rather than drunkenness as a cause of the accident in case 2, and the theft as a reason for the present economic disability in case 3 offer their relevance in maintaining the psychological equilibrium for these patients (Jaspers 1963).

Unlike other delusions seen in this period of recovery, these three have persisted for long periods. Though generally described as short-lived, (Russel 1969; Whitty and Zangwill 1977) occasional persistence for long has been described. (Whitty and Zangwill 1977; Jaspers 1963). Neuropsychological tests in our illiterate patients are difficult for interpretation, except in comparison to the local population (Sinha 1985). Test of memory, intelligence, abstract thinking, verbal fluency and gestalt function in our patient do not indicate any gross disorder of basic neuropsychological functions. Though none of these tests could be directly related to the persistence of disordered judgement in our patients, absence of gross neuropsychological deficit is evident. Jasper (1963) explains that the reality of reality judgement is a flexible reality – a movement of reason. Psychological basis for the failure of the 'movement of reason' in delusions has been narrated extensively by Hemsley and Gariety (1986). Our patients have adduced the certainity of their morbid beliefs from the life events following head injury. Functional impotence in case 1 confirmed his delusional conviction of vasectomy. Lack of opportunity to verify for himself the 'facts' about the injury in case 2 and repeated failure in his searches for the money in case 3 supported their contentions. Lack of consideration of alternate possibility, secondary mood-related cognitive distortions and interpretation of evidence only in the light of their delusional beliefs were responsible for the resistance to change. The content verification of relity judgement remained inflexible.

The significance of such persistent delusions in other aspects particularly as a legal problem has been known (Whitty and Zangwill 1977). None of our patients resorted to legal remedies based on their delusions. Case 1 decided on divorce and mutual consent at a village panchayat enabled legal separation, without even asking for a medical opinion. Case 2 was not allowed to seek legal measures by his parents. But, similar situations elsewhere can create difficult legal situations. The nature and content of the delusions in these circumstances should throw light into the nature of the complaints. Origin of such delusions during the subacute phase of head injury should enable the psychiatrist to recognize its possible nature.

Management of our patients could not be properly planned because of their infrequent follow-up. But, early management particularly along psychological lines might have prevented the contents becoming staunch in the course of time. Role of pharmacotherapy in the resolution of these delusions could not be studied in our patients.

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References

BELLAK, L., HURVICH, M. & GEDIMAN, H.K. (1973). Ego functions in schizophrenics, neurotics and normals, John Wiley, New York, 96-108.

CUMMINGS, J.L. (1985), Organic delusions; Phenomenology, Anatomical Correlations and Review, *British Journal of Psychiatry*, 146: 184-197.

HEMSLEY, D.R. & GARETY, P.A. (1986), The Formation and Maintenance of Delusions: A Bayesian Analysis, *British Journal of Psychiatry*, 149: 51-56.

JASPERS, K. (1963), General Psychopathology, Translated from the German 7th edition by J. Hoening and M.W. Hamilton, Manchester University Press, London, 93-108.

OMMAYA, A.K. (1982), Mechanisms of cerebral concussion, contusions, and other effects of head injury, In J.R., Youmans (Ed.), Neurological Surgery, Vol. 4, Sunders, Philadelphia, 1877-1895.

RUSSEL, W.R. (1969), The traumatic amnesias, In P.J. Vinken and G.W. Bruyn (Eds.) Handbook of Clinical Neurology, Vol. 3, North-Holland, Amsterdam, 293-295.

SINHA, D. (1985), Psychology in rural areas: The case of a developing country, In R. Diaz-gurero (Eds.), Cross-cultural and national studies in social psychology, Vol. 2, North-Holland, Amsterdam, 431-454.

WEINSTOIN, E.A. (1969), Patterns of reduplication in organic brain disease, In P.J. Vinken and G.W. Bruyn (Eds.), Handbook of Clinical Neurology, North-Holland, Amsterdam, 251-257.

WHITTY, C.W.M. & ZANGWILL, O.L. (1977), Traumatic Amnesia, In C.W.M. Whitty and O.L. Zangwill (Eds.), Amnesia, Butterworths, London, 118-135.