Indian J. Psychiat. (1990), **32**(1), 100-105

THE KLEINE-LEVIN SYNDROME : REVIEW AND REPORT OF TWO ATYPICAL CASES

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The Kleine-Levin Syndrome (KLS), a type of periodic hypersomnia, typically occurs in young males presenting with episodes of somnolence, excessive eating and abnormal behaviour. In contrast to other hypersomnias, this is a 'long-cycle hypersomnias' with intervals of months of years between episodes (Lishman, 1987). Bonkalo (1968) alludes to Epimenides, a Cretan poet of the sixth century B. C., as a possible candidate for the KLS. Antimoff (1898) described a 19 years old male who suffered from the triad of symptoms mentioned above. Levin (1936) was the first to make mention of "a syndrome of periodic somnolence and morbid hunger as a new entity in nosology" and believed that 10 such cases had till then been recorded, including two by Klein (1925). Critchley and Hoffman (1942) were the first to designate this disorder as the Kleine-Levin Syndrome. In a classic review, Critchley (1962) discussed all the cases reported till then and was convinced of the existence of 26 genuine cases, of which 11 were contributed by himself. In contrast, Oswald (1969) and Pai (1950) were not entirely convinced of the existence of the KLS as a distinct clinical entity. Oswald referred to the psychological (schizophreniform) symptoms associated with the attacks in case described by Critchley (1962). Hartmann (1985) estimates that about 100 cases with the clinical features of the KLS have been described. The infrequent occurrence of this syndrome has been highlighted in a study by Sours (1963) who was unable to detect a single case while reviewing evaluations for hypersomnia at the Columbia Presbyterian Medical Center between 1932 to 1961. No other epidemiological study appears to have been reported in this regard.

The classical clinical description is of a young male with onset of illness between 10 and 20 years of age and manifesting hypersomnia, megaphagia and abnormal behaviour. It usually develops over a well adjusted premorbid personality. Alleged precipitating factors have been described, ranging from psychological insults to gross head trauma. Generally lasting around one week per episode, these attacks remit spontaneously, often with a residue of psychological symptoms which also disappear on their own. Inter-morbid periods are normal and the disorder disappears with passage of time. Hypersomnia and megaphagia are the two major diagnostic symptoms. They have been reported in all the Indian cases (Prabhakaran et al., 1970; Narayanan et al., 1972; Agarwal and Agarwal., 1979 & Shukla et al., 1982). Orlosky (1982) reviewed 33 well-documented cases of KLS and was of the opinion that the KLS may be a mirror-image of Anorexia Nervosa. He found irritability to be the most common mood disturbance (57%). Euphoria and depression were found in 21% of cases only. Confusion was commonly observed (72%) and amnesia for the attack was present in 39% of cases. Imageries, hallucinations, sexuo-sadistic dreams, ideations and acts have been reported. The somnolence

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has a normal sleep character, but lasting 18 or more hours per day. Disorientation and forgetfulness are frequently present. Examination during the attack reveals, infrequently, extensor planters and brisk deep tendon reflexes (Lishman, 1987). CSF is invariably found normal. EEG shows widespread but non-specific findings, usually consisting of intermittent slowing in waking EEG, which completely revert on termination of an episode. The psychiatric symptoms after an 'attack' consist of depression, insomnia and amnesia. Elation (Gilbert, 1964), and sexual hyperactivity (Passouant et al., 1967) have also been described. Ferguson (1986) described the case of a 10 year old boy whose diagnosis of KLS was initially obscured by features of depression. No mortality has been reported in association with this disorder and spontaneous remission is the rule.

Case reports in literature have consistently appeared which differed from the classic pattern. Very few female case have been described (Duffy and Davidson, 1968; Earle, 1965; Gilbert, 1964; Drake. 1987 and Wilder, 1972). Thacore et al. (1969) described a case with onset at eight years of age and who did not manifest megaphagia. Green and Cracco (1970) described a case of KLS also without megaphagia. Ogura et al. (1975, 1976) also did not report excessive eating. Williams and Karacan (1975) refer to a case report where the KLS evolved into narcolepsy. Markman's (1967) patient was 29 years old at onset of illness, and his episodes continued to occur for 15 years. Drake (1987) described a 60 years old lady who developed the KLS after multiple cerebral infarctions. Long-lasting recurrence have been described (Gallinek, 1954 and George, 1970) where in the attacks continued for 17 and 18 years, respectively. The following account describes two cases of the KLS. These cases are being presented because of the infreqent reports from India and because of atypical features in both these cases.

CASE REPORTS

Case A

This was a 15 years old boy who was brought for consultation for his complaint of excessive sleep. His problem started abruptly about 8 days prior to consultation when he had gone to school and suddenly started feeling very drowsy with inability to concentrate on his studies. Since then he would sleep excessively, at times upto 22 to 23 hours per day. He would wake up only on being forced for toilet or food. When awake, he was usually unaware of the day, date or time. He was unable to recall events of the previous hours or the previous day. He was poorly communicative and also had a relatively decreased appetite. There was no demand for any specific type of food. Contrary to his usual habit, he started preferring to sleep close to his mother. He could be aroused without difficulty, but would prefer to go right back to sleep. He did not manifest any evidence of sadness of mood or suicidal ideation. He was admitted to the inpatient facility of G. B. Pant Hospital, where he slept for most of the day and night. On the day following admission he attempted to gain physical intimacy with a nurse who had woken him and was trying to engage him in conversation. On the second day following admission his sleep reduced spontaneously to about 10 hours in 24 hours but he was found to be lying in bed most of his waking time. On the third post-admission day he slept for about six-and-a-half hours only and complained of disturbed sleep at night. Disorientation was still present, althoug he remained awake for most of the day. Sexual disinhibition was noted on two further occasions by two different lady workers of the department. By the fourth post admission day the patient recovered completely and was normal active self.

Within the previous six months he had suffered from three very similar episodes, lasting 5 days, 8 days and 12 days, respec-

tively. The second and third episodes were precipitated by a fight at home, and approaching examinations, respectively. The interval periods were asymptomatic. Each episode had an acute onset and transition to recovery took a few hours to one or two days only. The patients' birth, infancy and childhood were unremarkable. He was an obedient and somewhat timid boy, with normal scholastic and extra-curricular interests. His family and personal history were non-contributory, apart from a history of suicide in two maternal uncles, about 20 years ago, details of which are not available.

Detailed physical and neurological examination were non-contributory. Mental status examination revealed a young boy of average build and nutrition who appeared drowsy and would frequently dose off during the interview. He would respond laconically or through sluggish gestures only. Personal appearance was not cared for. There were no abnormal involuntary movements. He was disoriented to time but was aware of place and persons. His attention was difficult to rouse. No sadness, on observation or subjectively, was noted. Haematological, biochemical and endocrinal assays were normal. EEG could be done only two days after the patient had recovered and it was found to be normal. X-ray of skull and CT scan of head did not reveal any abnormality. STS was negative.

Case B

This patient is of particular interest in view of some unique features. A 35 years old married female, she was brought for outpatient consultation for her complaint of excessive sleep. Her problem started approximately 20 days prior to consultation. She suddenly started sleeping much more than usual, occasionally about 20 hours per day, always more than 15 hours per day. She would wake up just long enough to attend to toilet and food. The patient herself did not think that she had increased appetite although her mother, with whom the patient was residing for the previous one week, was certain that she would eat more than two to two and a half times her normal. There was no history of any other form of abnormal behaviour. There was no evidence of depression or anxiety. Considering a possibility of KLS, the patient was admitted for observation and investigations. No treatment was given. The very next day after admission the patient's sleep pattern corrected itself spontaneously. There was no evidence of any mood disturbance, disorientation or abnormal behaviour during the attack or after the recovery. There was nothing suggestive of sexual disinhibition. In the past the patient had approximately ten such very similar episodes. Each time she was shown to a psychiatrist or a physician and was given medication (phenothiazines and antidepressants on some occasions) and once electroconvulsive therapy. The first attack occurred at the age of 23 years. The duration of each attack varied from 10 to 25 days, approximately. There was no relation of these attacks to the patient's menstural cycles. During the attacks, owing to her markedly increased need for sleep she would doze off in the midst of doing some household chore. On one such occasion, for instance, she slept off while operating an electrical mixer-grinder, and thus burning the motor of the appliance. Intermorbid and premorbid periods were asymptomatic. The patient's father sufferred from some psychotic illness for which he had to be hospitalized and was also given electroconvulsive therapy. His illness lasted for about one and a half years. There is history of marital disharmony : her husband reportedly often beat her; on one occasion she sustained a fracture of the zygomatic process. Interestingly, many of the patient's episodes of illness have occured following altercation at home with her husband or in-laws. There is history of suicidal gesture following an

altercation, and this was not related to the episodes of illness described above. During one hypersomniac episode the patient has been described to have wished to spend excessively mainly of food. In no episode, however, is there any history of euphoria, excitement or grandiosity. She suffered from enteric fever at the age of 11 years and chickenpox at the age of 13 years. A graduate and a mother of two children, she was not addicted to any psychoactive medication.

Physical examination did not reveal any abnormality. Mental status examination on the day of admission revealed drowsiness, but was otherwise non-contributory. There was no evidence of cognitive or affective abnormality. Routine blood and urine examinations were normal. Glucose tolerance test was within normal range. Fundus oculi examination did not reveal evidence of raised intracranial tension. EEG (which could, again, be recorded after remission only) was normal, X-rays of skull were normal. CT scan examination of head showed some abnormalities in the supratentorial comapartment. The third ventricle and both lateral ventricles were mildly dilated. Widening of sylvian fissures, cerebral sulci and interhemipheric fissure was observed. The impression of the radiologist was of parenchymal atrophic changes with prominence of CSF spaces.

DISCUSSION

Recurrent hypersomnia is a syndrome which may be brought about by a number of different conditions (Bonkalo, 1968). A special form of hypersomnia sleep drunkenness ("Schlaftrunkenheit")—has been described by Roth (1972). It consists of protracted drowsiness in the morning after a complete and deep night's sleep, and is associated with dissociation owing to incomplete wakefulness on premature arousal. Pai (1950) comments on the hysterical nature of this symptom, and insists that "...the KLS is not a definite entity...". Oswald (1969) suggests that all such cases be subjected to a differential diagnosis of schizoaffective psychosis, periodic psychosis and cycloid psychosis. Schizophrenia, drug intoxication, metabolic encephalopathy, seizure disorder, manic-depressive disorder and raised intracranial tension should also be considered. We were unable to obtain any evidence for the above in either of our patients. Various aetiological therories have been suggested by a number of workers. Psychodynamic explanations have been proposed for the increased need to sleep and eat in these patients (Earle, 1965; Bonkalo, 1968). Psychosomatic therories postulate that the person sleeps in order to escape from an unpleasant environment. Levin (1936) proposed that this syndrome is an expression of "inhibitability" or exhaustion of the highest centres lying within the frontal lobes. Gallinek (1954), Iakhno (1980) and Garland et al. (1965) thought that hypothalamic dysfunction was the basis for this disorder. Messimy (1981) reported two cases of atypical KLS in adolescent males, both suffering from a perturbation of genital development. Drake (1987), describing the case of a 60 years old female with multiple cerebral infarctions, primarily in the frontal and subcortical regions, suggested that the sleep-wake cycle and appetitive behaviour may have resulted from a perturbation of cerebral modulatory influence on hypothalamic and reticular formation centers. Snead (1977) also reported neurochemical abnormalities in KLS. Green and Cracco (1970) reported periodic EEG dysfunction in a case of KLS. Agarwal and Agarwal (1979) reported a normal EEG in their patient (who, incidentally, had an I.Q. of 75). Goldberg (1983) described a 17 year old boy with KLS in whom central stimulants aggravated the behavioural symptoms, suggesting a compensatory dopaminergic mechanism may be involved, at least in some cases. They hypo-

thesized that lithium could act by stabilising the dopamine receptors. Young (1975) implied a reciprocal neuroendocrine relationship with anorexia nervosa. Will et al. (1988) reported two cases of KLS precipitated by head injury. Reynolds et al. (1980) found the sleep indices of a patient of KLS during the symptomatic period to resemble those of primary unipolar depression. Asymptomatic periods of sleep resembled that of normal men. Unexplained fevers have been reported in a few patients. Metabolic disturbances include abnormal urinary ketosteroids excretion and ACTH disturbances.

The treatment of this condition has also been a subject of uncertainty. Successful treatment of KLS with lithium, including prophylaxis, has been reported by a number of workers (Reynolds et al., 1980; Abe, 1977; Ogura et al., 1975 & 1976 ; Goldberg, 1983 and Will et al., 1988). Periodic hypersomnia occuring in the context of an affective disorder has been successfully treated with lithium (Jefferies and Lefebvre, 1973). Abe (1977) reported that his patient relapsed on lithium but with low serum levels (0.32-0.4 mEq/l). He found a level of 0.6 mEq/l to be effective. Will et al. (1980) found carbamazepine to be ineffective, Reynolds et al. (1980) suggested that antidepressants could be of use, but amitryptiline failed to provide any benefit (Markman, 1967). Amphetamines were found to be beneficial by several authors (George, 1970; Agarwal and Agarwal, 1979 and Narayanan et al., 1977) but Markman (1967) and Ogura et al. (1975) found them ineffective. Drake (1987) reported improvement of his patient with clonidine and haloperidol. Overall, it appears that this syndrome of periodic hypersomnia responds best to lithium treatment. No clear cut guidelines exist for starting prophylactic therapy. We refrained from starting treatment for our patients: as for prophylaxis, it was arbitrarily decided that such treatment would be initiated if they suffer from another relapse.

Our first case seems to fit in the classical mould of a KLS, except for the absence of megaphagia/bulimia, which makes it unusual. Upto now, all Indian case reports have shown this symptom as present. Case B is certainly unusual and this is the first report from India of a female patient suffering from the KLS. In addition, the age of onset of illness in this patient was somewhat late. The attacks have already lasted for 12 years. Findings suggestive of atrophic changes in the CNS are not sufficient to explain the manifestations of this disorder.

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