THREE CASES OF MYOCLONUS ALLEVIATED BY BILATERAL ANSOTOMY. WITH A NOTE ON POSTOPERATIVE ALIBIDO AND IMPOTENCE*

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The purpose of this paper is (1) to report the therapeutically useful application of bilateral pallido-pallido-fugal section in 3 cases of myoclonus, thus bringing this relatively uncommon hyperkinesia within the compass of neurosurgery; and (2) to record the occurrence of certain sexual deficits which developed postoperatively in 2 of the patients, each of whom had undergone topically homologous 2-staged procedures. The third patient did not exhibit these deficits, presumably because his procedure was implemented nonhomologously.

Case 1. J.D., a service-station operator, aged 35 years, was evaluated on Dec. 14, 1956. He complained of painless, irregular, rapidly executed and uncontrollable jerking movements of the head, neck, trunk and all extremities. These had first appeared in the muscles of the left shoulder 13 years previously. The trunk became severely involved 6 years later, in consequence of which the patient sporadically exhibited vigorous movements of anterior and lateral flexion. The truncal and cephalic movements often were attended by startling, brief vocalizations, reminiscent of a dog's bark.

These phenomena were absent during sleep, least apparent during repose and regularly augmented by emotionally charged experiences. They became an increasing source of embarrassment to the patient in social situations and perceptibly compromised his business pursuits.

The patient had undergone a variety of physical, pharmacologic and psychiatric (including narcoanalytic) treatments. None had proved helpful. The past history revealed that recurrent sore throats and attacks of rheumatic fever in late childhood had resulted in a persistent heart murmur. Chorea, hypokinesia, hallucinations, headaches and diplopia were denied. At the ages of 28 and 31 years the patient had had illnesses diagnosed as "virus hepatitis."

He had married at the age of 22 and had fathered three healthy children. He and his wife assertedly were very happily mated and, until the time of his admission to the hospital, had had mutually gratifying coitus on an average of three or more times weekly.

Examination. The most conspicuous feature consisted of sporadic, nonpatterned abnormal movements of truncal and appendicular members which exhibited widely varying degrees of excursion. Expiration was often forceful and from time to time produced a bark-like sound. Muscular rigidity was absent. In all other respects, the patient appeared normal neurologically.

Routine blood, serologic and urinary studies and roentgenograms of skull and chest revealed no abnormalities.

The results of the Wechsler-Bellevue and the Minnesota Multiphasic tests were considered normal.

Electroencephalographic recordings (14 leads) made during the wakeful state and Seconal-induced sleep revealed 9–10/sec. occipital alpha; very infrequent left temporal 6/sec. activity, when awake and in light drowsiness; during sleep, bilateral 14/sec. spindles of normal type and mixed slow waves. Once, on spontaneous arousal, 6/sec. positive spikes appeared bilaterally in the parietal and posterior temporal areas. The recording was considered abnormal, with minor slow-wave activity during wakefulness in the left temporal region and bilaterally sharp positive activity during sleep.

Electromyography with coaxial electrodes placed in agonistic and antagonistic muscles most commonly revealed violations of Sherrington's law of reciprocal innervation during myoclonic movements (Fig. 1).

It was decided that bilateral ansotomy should be undertaken in 2 stages at intervals of 3 to 6 months and that the first should be performed to alleviate the movements of the more severely afflicted left side.

1st Operation—Jan. 2, 1957. The writer's intention was to perform a right transventricular

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ansotomy. During local procaine (1 per cent) anesthesia, small right vertical frontal bone, and dural flaps were reflected. At this time the anesthesiologist reported that the patient’s abnormal movements, up to then fully in evidence, had ceased spontaneously. The patient remained alert, responsive and clear.

Acting on the postulate that the abeyance of hyperkinesia would be but transient, the operator continued, making an incision approximately 4 cm. long through the cortex of the anterior portion of the “premotor” region, parallel to and about 2 cm. from the mid sagittal line. The incision was deepened through the corpus callosum. The anterior horn of the right lateral ventricle was entered and the septum pellucidum, septal vein, caudate head, fornix, choroid plexus and foramen of Monro were visualized. The accessible cerebrospinal fluid was aspirated. A suitable site for incision into the ependyma of the lateral wall of the 3rd ventricle (through which access might be had to the ansa lenticularis as it leaves the medial segment of the globus pallidus) was identified.

Although the patient had remained fully awake, the myoclonic movements did not recur. Attempts to evoke them by having the patient inhale amphetamine hydrochloride were unrewarding and after a delay of 50 minutes it was decided to discontinue or at least defer operation on the ground that, were the abnormal movements to prove enduringly abolished by what had been done thus far, the role of definitive ansotomy would be impossible to evaluate.

Course. During the evening of the day of operation, the myoclonic movements reappeared in part and on the next day they were fully evident, after which they continued with their usual vigor. Recovery from operation was unremarkable.

2nd Operation—Jan. 7, 1957. During general endotracheal anesthesia the scalp, bone and dural flaps made at the first procedure were reflected and access to the 3rd ventricle was again accomplished. No blood clots were encountered. A moderate degree of tissue edema was met and, in order to facilitate exposure of the lateral wall of the 3rd ventricle (preliminary to implementing ansotomy), 0.5 cm. of the fornix was resected at the anterior margin of the foramen of Monro. A cordotomy knife was used to perforate the ependyma of the wall of the 3rd ventricle at the site up to that time used by the writer for introduction of a specially designed leucotome to accomplish ansotomy (Figs. 2 and 3). Section of the ansa was then executed caudal to the anterior commissure.

Postoperative course was uneventful. The abnormal movements of the left side proved gratifyingly reduced. The patient was discharged from the hospital on the 8th postoperative day. Within 2 weeks he resumed work at his service station. The residual hyperkinesia in the limbs of the left side diminished steadily and now was virtually absent. In addition, the abnormal movements of the head, neck and trunk, although still conspicuous, had become perceptibly diminished in frequency, extent and vigor. Myoclonus of the limbs on the right side persisted much as it had been prior to operation.

Three months following right ansotomy it was timidly ventured by the patient and his wife that, since operation, the patient had experienced a reduction in libido and potency. During the first 3 weeks of the patient’s convalescence at home they had not been greatly concerned over the change in their sexual life, but as time passed they had noted no appreciable improvement and now asked whether a permanent deficit might eventuate. More specifically, the patient no longer exhibited his customary initiative in seeking coitus and spontaneous erections did not occur. When the wife assumed the initiative, her manipulations induced penile erections, but the latter were not turgid and usually proved too short-lived to permit successful intercourse. Ejaculation had been accomplished only twice in 3 months, in each instance with less-than-gratifying orgasm for the partners. The patient was instructed to take methyl testosterone propionate 10 mg., 3 times daily.

Six months following right ansotomy the patient and his wife reiterated their satisfaction with the alleviation of hyperkinesia. Regarding the sexual deficiency, they reported that, although preoperative capacities had not been fully regained, some improvement in the libido and potency had occurred while the patient was taking testosterone. The supply of the steroid had become depleted some 4 weeks prior to the 6th month’s check-up examination. Since then, the patient had relapsed into sexual ineptitude. Testosterone was re-prescribed.

Nine months following right ansotomy, the partners reported that the relative salutary effect of testosterone had been re-achieved. They now inquired whether comparable relief from the residual myoclonic movements might be in order. Regarding left ansotomy, the writer confronted the patient and his wife with the possibility that