

Editorial.

SURGERY AND THE AUTONOMIC NERVOUS SYSTEM.

IT will be generally conceded that knowledge of the pathology of the autonomic has lagged far behind that of the central nervous system. Indeed, until comparatively recently any correlation of symptoms with disease or disorder of the sympathetic or parasympathetic nervous systems was a matter of pure speculation or hypothesis.

The reasons for this striking discrepancy in our knowledge of cause and effect are not far to seek. For in the first place many of the syndromes attributed to disorder of the autonomic nervous system must from their very nature be merely disorders of function and not due to structural or permanent changes; and, secondly, investigations of any possible morbid changes in the ganglia, nerve-trunks and nerve-plexuses have not been pursued with the same thoroughness as has been applied in the case of the central nervous system.

Although clinical observers and pathologists have thus in past years failed to approach the experimental results achieved by the physiologists the last 15 years have witnessed a burst of activity in the surgery of the autonomic nervous system.

These surgical experiments merit the careful attention of clinicians and physiologists alike. The earliest operations were those performed for the relief of epilepsy, dating as far back as the late eighties and early nineties of last century. These consisted of extirpations of the cervical sympathetic ganglia or nerve-trunks. The results of these early operations were not encouraging, and a general interest in the whole subject can hardly be said to have revived until Leriche in 1917 published his work on periarterial sympathectomy. Originally introduced by him for the relief of severe causalgia following wounds of the median nerve, this operation has been widely practised and

applied to the relief of many different conditions, including causalgia, Raynaud's disease, intermittent claudication, trophic ulcerations, sclerodermia, gangrene and thromboangitis obliterans.

The operation consists essentially in the removal of the adventitia, with its nerve-plexus, from an artery over a length of from one to two inches. The results, although certainly not uniformly good, are often satisfactory and occasionally strikingly successful, in spite of the absence of any clearly established rationale for the procedure. Thus in certain cases it is impossible to deny the apparent improvement in the circulation, and the relief of pain. Since however the nerves to the arteries of the limbs join them at intervals throughout their extent it is difficult to explain how denervation of a small length of, say, the femoral artery in Hunter's canal can affect the state of the posterior tibial or dorsalis pedis artery.

A further stimulus to this form of surgery was afforded by Hunter's work on the sympathetic innervation of striated muscle and the practical application of his views by Royle. It is impossible here to discuss the whole question of the sympathetic innervation of striated muscle or even the merits of Royle's operation for the relief of spastic paralysis, but it may be recalled that the operation introduced by the latter consisted, in so far as the relief of spastic paralysis was concerned, of the removal of the sympathetic innervation of the lower limbs by lumbar ramisectomy. In general it may be concluded that the results of sympathetic ramisectomy or ganglionectomy in cases of spastic paralysis of both the lower and upper limbs have not been such as to fulfil in the minds of most observers the high hopes raised by the publication of the work of Hunter and Royle. The application of these operations, however, has recently been diverted into somewhat different fields, especially in the treatment of disorders of the circulation and notably in Raynaud's disease. And it is in this field that they bid fair to replace the older one of periarterial sympathectomy. In the case of the lower limbs, extirpation of the second, third, and fourth lumbar ganglia or division of the rami joining them to the nerves of the lumbar plexus is the operation usually performed; in the upper limbs removal of the inferior cervical and first dorsal ganglia seems to be necessary, combined with the division of the ramus connecting the first and second dorsal nerves. Great benefit is reported from these operation in cases of Raynaud's disease and

thromboangitis obliterans, and successful results seem also to have followed their performance in certain cases of polyarthrititis. Another condition in which lumbar ramisectomy appears to have yielded satisfactory results is Hirschsprung's disease or congenital megacolon.

Operations on the autonomic nervous system in angina pectoris have been carried out in different forms for the last 16 years or more, Jonnescu having been the pioneer in this direction. The merits of such operations as well as their technique are still highly debatable and there are probably few in this country with any great practical experience of the subject. A more promising field, and one deserving fuller exploration, is sympathectomy for the relief of pain of visceral origin.

Interest has lately been centred upon the feasibility of relieving the severe pains of pelvic carcinoma by division of the pelvic sympathetic nerves, in particular the division of the presacral nerve in cases of carcinoma of the bladder. The gastric crises of tabes afford another condition in which suitably devised operations may very properly be considered as a possible method of relief.

While all operations of this kind are still unfamiliar to the bulk of the profession and their ultimate value still uncertain, it yet behoves us to consider very carefully their possible application to many different forms of disease. They are perhaps of particular importance to the neurologist when the possibilities of the relief of pain is concerned, and to physicians in general in dealing with the many varieties of the so-called angioneuroses. At the very least there is ground for hope that a new and valuable weapon has been placed in our hands. It remains for us to see that it is used wisely.



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