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PARIETAL NEURALGIA

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Pain referred to a cutaneous area is one of the commonest complaints heard in any diagnostic clinic. When the reference of pain is over the thorax or abdomen, it is our common habit to think of the possibility of some visceral pathologic state, which, by means of a nervous connection involving the spinal cord, refers itself to the cutaneous surface. The reference of visceral pain through the efferent nervous connections to the spinal cord and its spread therefrom to the cutaneous sensory area supplied by the same cord segment or even to adjoining segments, if the stimulus be of sufficient intensity, has been suggested by the work of McKenzie<sup>1</sup>, Head<sup>2</sup>, and Sherren<sup>3</sup> and has found wide acceptance throughout medical literature. These cutaneous zones of somatic reference have been described on the basis of embryonic development and charted with a view to their use in diagnosis. Practically, however, it has been shown that they are of relatively little value, and constant relationships between visceral pathologic states and cutaneous manifestations have not been consistent. In general the principle still holds that clinical investigation must first envision the possibility of such an origin of pain, to be excluded only after the most thorough search. Frequently the most careful search will fail to uncover any such visceral basis, and in these the possibility of pain of parietal origin must be considered. Failure to appreciate the possibility of parietal origin for distress may lead to an unwarranted diagnosis of visceral disease with the sequelae of needless surgical procedures. Repeated examples of this, usually in the abdominal area, are commonplace, and this frequently explains the persistence of symptoms after repeated surgical attempts for relief. Such patients are frequently regarded as being

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neurotic or having painful scars, neuromas, or aponeurotic strains. Frequently the persistence of symptoms after operation has been explained by that "last refuge of the diagnostically destitute, adhesions."

Parietal neuralgia may simulate a more deep seated disease in any part of the body. Clinically it is usually confined to the spinal nerves, since these emerge from the spinal canal through relatively small openings, the intervertebral foramina, and are therefore more subject to mechanical irritations, which provide the basis for the neuralgia. Thus the upper cervical nerves supply sensation to the occipital and mastoid areas and are frequently confused with pathologic processes in the mastoid cells, within the cranium, or in the nasal accessory sinuses. The lower cervical nerves supply sensation to the shoulders and arms. Owing to the absence of underlying viscera there is likely to be less confusion in the recognition of the signs of brachial neuralgia.

The intercostal nerves supply the chest wall, and intercostal neuralgia may simulate cardiac, pleural, and pulmonary disease. The anastomosis which exists between the lateral cutaneous branch of the second and sometimes the third intercostal nerve and the medial brachial cutaneous nerve in the axilla gives rise to the possibility of intercostal neuralgia being referred to the arm. This may, therefore, increase the suspicion of anginal pain raised by pain in the chest. The lower intercostal nerves supply the greater portion of the anterior abdominal wall, and in this area parietal neuralgia probably assumes its greatest importance, since it may simulate pathologic conditions in the gastrointestinal and the genitourinary tract. There is a tendency among physicians and surgeons to think first of the possibility of some abdominal origin for pain referred to the abdominal parietes, particularly since some surgical procedure may be necessary and life-saving. This must be considered the correct attitude, and intra-abdominal lesions which necessitate immediate surgery must not be overlooked. Parietal neuralgia certainly will never cause a fatality as appendicitis may, but on the other hand care must be taken to avoid unnecessary operations and to recognize that many of these pains are merely parietal in origin.

The upper lumbar nerves supply the skin sensation of the groin and mons pubis as well as the upper thigh, and this pain reference must be kept in mind in differentiation of pathologic conditions involving the bladder, lower bowel, and inguinal canal. Pain referred to the thigh and leg from the lower lumbar and sacral segments of the cord is less likely to be misinterpreted, as is pain referred to the upper extremity.

Parietal neuralgia is induced in the great majority of cases by some

pathologic process or by pressure upon the spinal nerve root, usually at the point where it emerges from the intervertebral foramen. The commonest cause in older patients is undoubtedly a hypertrophic arthritic process of gradual encroachment upon the foramen. In younger patients the question of postural strains must be considered. Structural scolioses, injuries and tumors of the bone may be readily recognized, but functional scoliosis may escape notice. This will only be seen by careful examination of the patient's back and posture. Any complete physical examination must include careful observation of the patient's back, preferably with the patient standing in his bare feet. Occasionally the neuralgia may result from irritation of the nerve along its course by tumor, aneurysm, or some mechanical irritation such as occurs in the scalenus anticus syndrome. In a few instances the factor would appear to be a toxic one, such as occurs in segmental neuralgia associated with upper respiratory infection. Pain associated with herpes zoster and tabes dorsalis must also be kept in mind.

Parietal neuralgia is likely to be of a dull chronic character, although more severe grades are encountered sufficient in degree in some instances to suggest an intra-abdominal emergency. The pain may be of fleeting duration, and this probably accounts for the transient pain which many normal individuals experience frequently and dismiss without consideration. To the person of neurotic temperament, however, this may assume major proportions. It must be remembered that pain is a subjective symptom and varies greatly between individuals. Tenderness in the parietal wall is always associated with the pain, and, as pointed out many years ago by Carnett<sup>4</sup>, this must be differentiated from deep abdominal disease by making the examination with the abdominal wall tense. Tenderness with the abdominal wall in a tense state suggests the parietes as the location, provided that the parietal peritoneum is not inflamed. Tenderness with the abdominal wall relaxed may be in the parietes or in the underlying abdominal viscera. Hyperesthesia in the segmental area involved may also be noted and can be demonstrated by pinching the skin or by the reaction to a sharp point. Frequently a definite line of demarcation can be made by drawing a sharp point downward over the skin surface and asking the patient to note the level at which the stimulus appears to increase. The area of tenderness is usually larger than the area referred to as the site of pain and often overlaps portions of the chest and abdomen or the abdomen and thigh. Such a distribution of tenderness or of pain and tenderness over an area supplied by one or more cutaneous nerves and not overlying any definite viscus is especially suggestive of parietal neuralgia. Rigidity does not usually occur in parietal neuralgia, since only the sensory fibers are

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ordinarily involved. Frequently in parietal neuralgia of the thoracic area it is possible to demonstrate considerable tenderness along the course of the nerve in the intercostal spaces by pressure, particularly near the spine.

A careful physical examination is essential. The habitus of the patient should be considered, since postural strains are more likely to occur in the linear asthenic type of individual. The general posture should be observed as well as the anteroposterior and lateral curves of the spine, and the legs should be measured for inequality of length. Flexibility in all directions should be checked carefully and tender points in the spine searched for by deep pressure with the knuckles. X-ray studies of the spine will frequently reveal arthritic processes and actual bony diseases if present. Inasmuch as parietal neuralgia is to a large extent a diagnosis of exclusion, all other methods which would seem to aid in diagnosis should be employed.

Abdominal wall tenderness may be eliminated by nerve blocking, which is, therefore, a useful measure in differentiating abdominal disease and pain of parietal origin. This may be carried out paravertebrally in the course of the thoracic and lumbar nerves or along the course of the nerve as in the case of the ilioinguinal nerve. In some instances local infiltration above the area of tenderness may be of diagnostic value. If tenderness on deep pressure can be eliminated by cutaneous anesthesia, it would seem likely that the pain has been of parietal origin.

Treatment of parietal neuralgia depends upon the process which has caused it. In the arthritic patient the use of heat and massage over the affected area will be of value. Limitation of the movement of the spine by adequate braces may be useful, and x-ray therapy to the spine has apparently been beneficial. Avoidance of prolonged walking and standing and a period of recumbency in a firm bed may be useful from a therapeutic viewpoint and also as an aid in diagnosis. In the case of younger persons, especially those of asthenic type, the use of graduated postural exercises is of chief importance. By their use muscle tone is improved, and ligamentous strain is relieved. Marked improvement of peripheral circulation is frequently seen in association with deep breathing exercises, and an improved position and circulation of the abdominal viscera often alleviates the indefinite gastrointestinal symptoms of which these patients complain. A short lower extremity may be corrected with a lift in the heel sufficient to cause the pelvis to be level and to restore the symmetry of the spine, thus overcoming the mechanical basis for strain. Adequate rest is also beneficial and may be all important in the chronically exhausted individual.

SUMMARY

Parietal neuralgia must be considered in the differential diagnosis of dull persistent pain referred to any cutaneous area. It is particularly to be considered when the findings are not suggestive of some clean cut, deep seated pathologic process. It is in general an elimination diagnosis, only to be advanced after careful search for other possible causes. It may simulate a great variety of other conditions and is undoubtedly responsible for many tentative diagnoses of pleurisy, gallbladder disease, kidney disease, and spastic colon for which adequate evidence cannot be advanced. Relief depends upon the recognition and correction as far as possible of the basic pathologic processes. Of chief importance is its differentiation from conditions requiring operation.

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**TREATMENT OF ACTINOMYCOSIS WITH PENICILLIN**

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Two cases of actinomycosis satisfactorily treated with penicillin are reported. Lyons<sup>1</sup> reported improvement in 4 cases treated with penicillin but stated that a longer follow-up period was necessary. Herrell<sup>2</sup> treated a case of abdominal actinomycosis complicated by carcinoma of the colon with unsatisfactory results. In 3 cases of maxillofacial actinomycosis he considered recovery satisfactory. Florey and Florey<sup>3</sup> believed that in their 2 cases dosage was inadequate. Christie and Garrod<sup>4</sup> treated a patient with actinomycosis of the chest wall and lung, who subsequently died from infection introduced by penicillin intravenous drip. At autopsy they observed disintegration of the fungus colony, which they believed might have resulted from treatment.