CASE REPORTS AND TECHNICAL NOTES

MULTIPLE MENINGEAL DIVERTICULA (PERINEURAL CYSTS) OF THE CERVICAL REGION DISCLOSED BY PANTOPOPAQUE MYEOGRAPHY

REPORT OF A CASE

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In prior reports concerning cystic lesions associated with human spinal-nerve roots by Smith,8 Tarlov,12-15 Rexed,4-8 and others4,5,7,9-11 no statement has been made establishing the occurrence of these lesions within the levels of the cervical spinal-nerve roots. Marburg,3 Hinrichs,2 Tarlov12-15 and the writer8 have all reported their occurrence in thoracic, lumbar and sacral roots, and the latter presented a discussion of these lesions with regard to incidence, location and possible etiological factors coincident to their formation.

Those familiar with autopsy dissections will readily understand why material analyzed in various prior reports contained relatively few specimens obtained from the cervical region. It came, then, as a considerable surprise in the course of a routine cervical Pantopaque myelographic study, that the writer encountered a patient demonstrating multiple meningeal diverticula or perineural cysts of the cervical spinal-nerve roots. For those readers interested in a more complete discussion of this subject, the articles referred to above are recommended.

CASE REPORT

P.S., a 47-year-old man, was first examined on Feb. 15, 1961, with the complaint of pain in the left side of the neck and in the left upper extremity associated with limitation of motion of the shoulder. He had been treated by his physician for this complaint for 2 months and had received analgesics, physical therapy and on two occasions injections of steroids into the left shoulder for what was considered a bursitis.

Examination disclosed normal general and neurological physical findings with the following exceptions. There was pain elicited with extension and rotation of the neck to the left, radiating into the suprascapular and deltoid region of the left shoulder and down the posterolateral arm to the elbow. Pain and marked limitation of motion of the shoulder were present with abduction and external rotation, and there was tenderness to palpation of the subacromial region laterally and anteriorly. There were no reflex or sensory changes in the extremity and no evidence of atrophy or fasciculations.

Roentgenograms of the cervical spine disclosed moderate changes of hypertrophic arthritis with degeneration and narrowing of the C4-C5 discal space. There was a short C7 cervical rib on the right. Roentgenograms of the shoulder did not disclose calcification of the tendon insertions or other significant changes.

It was felt that although the patient possibly might have a protruded cervical disc accounting for at least part of his problem, consultation with an orthopedist was advisable. After a further trial at mobilization of the left shoulder by conservative means, it was decided to hospitalize the patient and perform a Pantopaque myelogram. If negative for a discal protrusion, mobilization of the shoulder under anesthesia was then to be carried out. If the Pantopaque-myelogram disclosed a protruded disc, operation for this lesion was to follow and attempts at mobilization of the shoulder were to be carried out at the time of the surgical anesthesia.

Lumbar puncture revealed clear spinal fluid with an opening pressure of 14 cm. H2O. A Queckenstedt test (Grant-Cone) revealed an open subarachnoid pathway. A sample of spinal fluid was obtained and 9 cc. of Pantopaque were instilled in the subarachnoid space and passed under fluoroscopy into the cervical canal. Fluoroscopically, it could be seen that at several levels, essentially bilateral, Pantopaque ran laterally several cm. and formed bulbous pockets. The usual posteroanterior and lateral cervical roentgenograms were obtained. These verified the presence of multiple meningeal diverticula occurring at least three spinal levels, involving the C6, C7 and C8 roots (Fig. 1).

When the Pantopaque was returned to the lumbar cistern, several pockets of the contrast medium persisted in the thoracic region (Fig. 2). No lesions were seen in the lumbar-sacral canal. The Pantopaque then was removed. Subsequent laboratory specimens of the spinal fluid were entirely normal.

As a result of this study, it was concluded that no definite left cervical nerve-root compression was demonstrated, and because of the multiplicity of the meningeal diverticula, it seemed unlikely that these, per se, accounted for the patient’s symptoms. He subsequently had his shoulder mobilized with a reasonable return of useful function. At this writing the patient is working and has ceased to have significant pain or symptoms suggestive of a herniated cervical disc.

DISCUSSION

This case presented the problem of distinguishing signs and symptoms of a possible herniated
cervical disc associated with arthropathy of the shoulder and a possible shoulder-arm syndrome, which had failed to respond to the usual treatment. While the Pantopaque myelogram did exclude a protruded disc, the finding of multiple meningeal diverticula did not exclude a radicular-pain syndrome associated with these lesions. However, the patient’s improvement with orthopedic treatment of his shoulder and resolution of the radicular symptoms would make one conclude these cyst-like lesions were not the cause of his complaint.

The presence of arachnoidal diverticula within the thoracic spinal canal retaining Pantopaque is seen not infrequently, although the exact nature of these findings has not been described. These seem to lie centrally within the canal proper, and probably represent merely fortuitous loculations within blind arachnoidal pouchings. Often they can be emptied readily by flow of gravity in a cephalad direction, but occasionally, once filled, they resist attempts at removal by tilting or turning the patient, coughing, or other maneuvers. They do not appear to represent the extradural meningeal diverticulum that has been described in the thoracic region, and from their central location within the spinal canal most certainly have no relation to the spinal-nerve roots or the dorsal-root ganglia.

By their gross configuration, the lesions described in this study possibly might be considered related to the lateral outpouchings of the meninges seen in patients with a brachial-plexus avulsion. In this case the absence of a compatible history and lack of definite neuropathy prevent this consideration.

The lateral placement of the lesion, its relatively symmetrical and bilateral involvement, and the ease of filling and emptying with Pantopaque indicate that these lesions in all respects are similar to the meningeal diverticula or perineurial cysts demonstrated by myelography in other locations within the spinal canal.

CONCLUSION AND SUMMARY

A case report is presented demonstrating by Pantopaque myelography multiple meningeal diverticula or perineurial cysts of the cervical spinal-nerve roots. It is felt that this demonstration proves that these lesions exist throughout the length of the spinal canal. Again, their relationship to definite neurological signs and symptoms can be only conjectured, and must await further proof.

REFERENCES

1. Abbott, K. H., Betten, R. H., and Leimbach, W. H. The role of perineurial sacral cysts in the