ABDUCENS NERVE PALSY FOLLOWING SPINAL ANESTHESIA

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ABDUCENS nerve palsy following spinal anesthesia has not been reported in the American literature since Hayman and Wood (1) published their 2 cases in 1942. In 1941, Dattner and Thomas (2) published a case of bilateral abducens nerve palsy following a simple lumbar puncture. The rest of the literature for the past ten years is noticeably Italian and there are only about ten of these articles. Blatt (3) reported on 97 cases up to 1928. Since then about 4 cases have been reported, 2 by Hayman and Wood and 2 in the Italian literature.

In the last few years, spinal anesthesia has been used a great deal in military installations. At the Halloran General Hospital, spinal anesthesia has been performed in 635 cases in the past nine months, without a single case of abducens paralysis. With the tremendous increase in the use of spinal anesthesia, we may expect a certain percentage of sequelae. At the present time this is very small. Yaskin and Alpers (4) reported on neuropsychiatric complications following spinal anesthesia and placed the cranial nerve palsies as second in frequency to headaches. The sixth nerve is affected in 90 per cent of cranial nerve palsies. Yaskin (5) demonstrated the peculiar vulnerability of the sixth nerve owing to its anatomic position. It has a long and devious course and, because of its relation to the dura, is subject to pressure alterations.

The statistical frequency is variable. Hayman and Wood, quoting the Italians, gave 1 per cent and also 1 to 250. This seems rather high. Maxson (6), in his textbook, quoted Averett as having 2 cases in 896 spinal anesthetics, and Babcock as having 5 in his first 2,000 cases and none in his second series. We have observed only one case of abducens paralysis. The fact that abducens nerve palsy has not been reported does not mean that it does not occur.

Etiology

The etiology of abducens nerve palsy following spinal anesthesia is unknown and not clearly understood. It is still in the opinion and theory stage. The factors that are considered to be involved are three-fold:

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1. Mechanical.
   a. Hypertension of spinal fluid.
   b. Hypotension (leakage theory).
   c. Alterations of blood pressure during spinal anesthesia.
      (1) Hemorrhage as a result of increased intracranial pressure.
      (2) Anemia, as a result of low blood pressure involving the
           bulbar center.

2. Toxic.
   a. Drugs.

      In the 97 cases reported the following drugs were in use:

      | Drug         | Per cent |
      |--------------|----------|
      | Stovaine     | 64       |
      | Procaine     | 26       |
      | Tropacaine   | 7        |
      | Cocaine      | 5        |

      Hayman and Wood (1) used nupercaine in one case and pontocaine
      in the other.

3. Inflammatory.
   a. Low-grade meningitis or meningismus.
   b. Preexisting diseases, such as syphilis.

Hayman and Wood (1) believe that the problem will be solved on the
basis of a disturbance in the dynamics of the spinal fluid during spinal
anesthesia. Dattner and Thomas (2) feel that their case may be
explained on the basis of a bilateral nerve trunk injury owing to changes
following lumbar puncture. Maxson discussed it under meningismus.

Symptoms

Abducens nerve palsy occurs most frequently in women and it is
usually unilateral. The ratio of unilateral to bilateral palsy is 3 to 1.
It affects the right and left eyes equally. It comes on a variable number
of days after spinal anesthesia. The following figures are taken
from Hayman and Wood (1).

<table>
<thead>
<tr>
<th>Days</th>
<th>Per cent</th>
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<tbody>
<tr>
<td>3-6</td>
<td>-45</td>
</tr>
<tr>
<td>7-10</td>
<td>-30</td>
</tr>
<tr>
<td>11-16</td>
<td>-15</td>
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<tr>
<td>16-21</td>
<td>-10</td>
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The patient usually complains of headaches, dizziness, stiff neck, pho-
tophobia and diplopia. Laboratory data are essentially negative. Re-
covery is complete, and usually takes place within a few weeks to two
months without specific treatment. There is usually no residual patho-
logic change.
TREATMENT

The treatment is not specific. An eye patch is applied to remove the distressing diplopia and left on for a short period of time. Lumbar tap may be done to reduce the spinal fluid pressure (if elevated) to normal. Galvanic treatment with a weak current may be used to stimulate the eye muscle. Plastic repair may be undertaken if the lesion persists for over two years.

The following case of abducens nerve palsy is recorded because it demonstrates typical symptomatology. No explanation is offered.

CASE REPORT

A 49-year-old white man was admitted to the Walter Reed General Hospital on 10 July 1943 with jaundice and a history of epigastric pain. He had had two previous attacks. During hospitalization (August 1942) a diagnosis of acute catarrhal jaundice was made. Jaundice at that time was considered to be due to inoculation for yellow fever administered 11 March 1942. At that time the jaundice subsided for ten days and he was placed on a fat-free diet.

Physical examination in 1943 was essentially negative except for jaundice and a moderate tenderness and spasm in the right upper quadrant. The blood pressure was 148 mm. systolic and 96 mm. diastolic. The icteric index was 20. Roentgenograms showed biliary calculi. The diagnosis of chronic cholecystitis and choledolithiasis was made.

Operation was performed 10 August 1943 under spinal anesthesia and cholecystectomy was performed. The course of anesthesia and operation were uneventful. The drugs used were pontocaine and dextrose. On the first postoperative day, the patient read a newspaper. On the fourth postoperative day, he complained of headache and double vision. It was noted that he had a paralysis of the right rectus muscle. Eye consultation on the tenth postoperative day revealed paresis of the external rectus muscle of the right eye with a decrease of sensitivity and widened palpebral fissure. Th main complaint was double vision and headache on the right side of the head. An eye patch was devised and worn for two weeks. On the twentieth postoperative day, the headache disappeared and there was less double vision. The patient had control of the right rectus muscle. By the thirtieth postoperative day, the paralysis was entirely gone.

SUMMARY

A case is recorded of unilateral abducens nerve palsy which followed spinal anesthesia. Recovery was complete by the thirtieth postoperative day.

REFERENCES