
Chronic Daily Headache: The Role of the Epidural Blood Patch

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Abstract

Chronic daily headache due to low pressure as a consequence of cerebrospinal fluid leakage is effectively managed by the placement of an epidural blood patch which can still be considered a long time after the initiating event.

INTRODUCTION

Headache disorders are common with myriad causes and, as always in pain medicine, the history is key. Particularly important is taking the patient back to the start of the problem which also helps the decision about any imaging that may be required.

Once a primary cause for chronic daily headache (CDH) has been excluded, of the secondary disorders, the condition of low cerebrospinal fluid pressure though once rare has now to be considered. New daily persistent headache (NDPH) with orthostatic features particularly in women can have this as the cause; management of patients is often as a chronic pain syndrome which may lead to complex and potentially avoidable treatment plans [1].

The usual cause of a low pressure headache seen in everyday practice is accidental dural puncture. Postdural puncture headache (PDPH) is a common and important complication of epidural catheter insertion in obstetric patients. The patient is at risk of developing PDPH any time the dura and arachnoid maters are punctured [2-4].

However the International Headache Society classification recognises not only the classical headache that follows dural puncture (7.2.1 Post-dural puncture headache {G97.0}) but also headache attributed to spontaneous, or idiopathic, low CSF pressure (7.2.3 {G44.820}) with similar features, particularly the postural element and response to treatment, and management [5].

The Scottish Intercollegiate Guidelines Network (SIGN) guideline 107 considers in section 3.3.5 intracranial

hypotension (spontaneous or iatrogenic) identifying patients with reduced cerebrospinal fluid (CSF) pressure and a clear postural component to the headache. The headache developing or worsening soon after assuming the upright posture, lessens or resolves shortly after lying down. The low pressure headache is caused by CSF leakage, the commonest cause for which is a lumbar puncture but spontaneous dural leakage can occur and is often not recognised [6].

In the absence of direct trauma, usually puncture, creating the low CSF pressure even a trivial increase in intracranial pressure or sudden drop in atmospheric pressure may be responsible and produce similar clinical features; a subset of patients with CDH, in whom other causes have been excluded, without evidence of dural puncture but a reason for the increase in intracranial pressure [5-7].

The precise cause can be hard to define but an underlying structural weakness may be responsible. Following a history of what may have been a trivial traumatic event resulting in positional headache as a key feature, investigation by MRI has now yielded more evidence of leakage; systemic connective tissue disorders are found to be associated and the rationale for management defined [8-10].

CASE REPORT

The 31 year old female patient, 66kg and 161 cm, was referred to the Pain Management Service (PMS) by her primary care physician because of persistent headache following dural puncture during obstetric epidural analgesia five years earlier. An epidural blood patch had been placed on the morning of the second day following delivery but this

did not effectively relieve the headache. Reviewed one week postpartum by the senior obstetric anesthetist the patient declined the offer of a second patch.

At consultation the patient reported a continuing occipital headache with some postural elements eased by resting her head back; a CDH but for only 7-10 days in an average month with many weeks free of pain. No cause for the recurrences had been identified apart from a tendency to a sensation of thirst beforehand meaning that she endeavoured to maintain a high fluid intake. Medication orally with codeine 60mg together with paracetamol 1g reported as providing effective easement.

With a definite dural puncture five years before and persistent headache having postural elements the patient wished to proceed with an epidural blood patch which would be scheduled within 48 hours of the periodic onset of the headache.

Epidural blood patch was carried out as planned in standard fashion using 20ml autologous blood at the lumbar 3/4 interspace.

At review 4 months following the procedure the patient reported what she considered to be a good result with only an occasional headache of short duration.

DISCUSSION

Epidural blood patch (EBP) has been used as a treatment for headache since it was first reported in 1960 [11].

The pathogenesis, prevention and treatment of PDPH is very well established but remains contentious. The loss of CSF and lowering of CSF pressure is not disputed but the mechanism of headache production unclear perhaps involving compensatory vasodilatation as intracranial volume must remain constant. The EBP results in a clot over the actual or putative puncture site or hole with a success rate of 70-98% if undertaken within 24 hours with the option of second, third or even fourth attempts [12].

To determine current practice, a survey of the USA members of the American Society of Regional Anesthesia, and based upon 1024 (29.4%) returns, found that despite being a cornerstone of treatment and nearly universally used the procedure remains largely nonstandardised [13].

PDPH due to accidental or deliberate dural puncture is a common and important complication effectively managed in obstetric anesthetic and neurology practice without the

involvement of a PMS using a standard EBP repeated if necessary. In obstetric practice, 15% of patients need a second patch and some headaches persist [2,4].

Postural features remain the key diagnostic feature of PDPH and other low pressure headaches which together with the response to EBP unites and separates them from other causes of headache. Causation may be trivial but EBP is an option whenever a careful history reveals the important distinguishing features. The causes of headache (other than direct trauma) which have been reported as responding to EBP are varied, even a generalised seizure [7].

Of the six cases reported by Parris in 1987, five (spontaneous onset during pregnancy, spontaneous temporal headache, spontaneous frontal headache {2}, spontaneous occipital headache) had a satisfactory response but one with significant psychological problems did not [14].

Treatment by EBP has been reported as efficacious even when delayed. In 1986, nineteen months following dural puncture and more recently for 1 year. For cases without evidence of dural puncture 15months to 20 years [7,14,15].

EBP is also the mainstay of treatment for headache due spontaneous intracranial hypotension, directed by appropriate imaging, with surgical treatment reserved for failures [9].

EBP should be considered as a treatment in all cases of CDH with diagnostic features indicating low CSF pressure as the cause.

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