Correspondence

Chronic adhesive arachnoiditis

Editor—The review on the topic of ‘chronic adhesive arachnoiditis’ (CAA) from obstetric epidurals by Rice and colleagues was apparently triggered by a series of articles that appeared in one of the London tabloids, fostered by some of the members of the Arachnoiditis Trust. These articles were unreasonable to many of us that remember the statistics of maternal deaths in the 1970s in the UK, when general anaesthesia was the predominant form of analgesia; aspiration of gastric contents and difficulty with tracheal intubation were the main culprits. I also feel that it is the right of women in labour to ask for pain relief, and anaesthetists ought to provide it for them. But we cannot deny that neuroaxial anaesthesia produces aspiration and that neurological deficits are probably one of the most serious. Unfortunately, the authors of the review lost the opportunity to assess the subject of neurological deficit and arachnoiditis (ARC) after epidural anaesthesia. Instead of being impartial, they attempted to prove that adhesive arachnoiditis does not happen as frequently as the patrons of the ‘Trust’ claimed it did and, when it does occur, they dismissed it as irrelevant.

Allow me to say for the record, that I do not belong to the Arachnoiditis Trust and I do not agree with their attempt to ban epidural anaesthesia for women in labour. Properly executed, epidural analgesia is, at the present time, the safest approach. However, by focusing mostly on the old concept of CAA, the authors of the review failed to recognize that ARC is an integral feature in most injuries to the intrathecal neural structures resulting in a variety of neurological deficits occurring after spinal interventions. These causes include: myelograms; spinal or epidural anaesthesia; invasive pain relief procedures; infections and blood entering the cerebrospinal fluid (CSF) from epidural blood patches; haematomas; trauma; or spinal operations. The arachnoid is now recognized as an active organ that responds to any invasion by initiating an inflammatory response proportional to the degree of injury. This reaction lasts ~2 months; if not treated, it may progress into a chronic proliferative phase in which scarring, fibrosis and adhesions become permanent. These two phases are distinctly identified in radiological images with ‘enhanced’ or oedematous nerve roots, located in the anterior half of the dural sac with the appearance of ‘stars’ (Fig. 1) in the inflammatory phase and ‘clumped’ nerve roots forming bizarre patterns adhering to each other and to the dural sac, in the chronic proliferative phase (Fig. 2).

Concerning the recognition of symptoms typical of ARC, Rice and colleagues listed in Table 1 vague symptoms described in a list of cases of syringomyelia caused by needle puncture, as well as bladder, bowel and/or sexual dysfunction, which are all frequent manifestations of this disease. No reference was made to the burning character implying neuropathic pain, as this concept had not yet been published. The diagram on p. 110 of Rice’s paper was taken from the literature, before the 1909 article by Victor Horsley was published. The authors cited a 1964 reference (no. 108) noting that local anaesthetics cross the dura; more recently, elegant studies done by Bernard and colleagues have found that this passing is selective and that they are not transported by the arachnoid villi at the dural cuff, nor through the radicular arteries. Current understanding suggests that an arachnoiditic process is part of most post-interventional neurological deficits such as the cases of cauda equina syndrome after spinal or epidural anaesthesia. The most common radiological finding is clumped nerve roots, and fibrosis are also forms of arachnoiditis. Cauda equina lesions may be recognized by obtaining coronal views in MRI.

In essence, the authors searched for the subject ‘adhesive arachnoiditis’ and found the citations to the old cases of constrictive pachymeningitis after repeated intrathecal injections of dyes or steroids, infection or multiple surgical procedures. With the diagnostic tools at hand, specifically MRI, and CAT scan postmyelogram (Figs 1 and 2), the diagnosis of ARC can be made promptly. If it is in the inflammatory phase, treatment may prevent ARC from progressing into the chronic proliferative stage. By emphasizing old concepts, they missed the chance to impartially analyse the subject and give an important message that would advance everyone’s knowledge.

J. A. Aldrete
Birmingham, AL, USA

Editor—We would like to thank Dr Aldrete for his letter regarding our review article, supported by a large volume of his own work.

We would like to make it clear that, whilst our concern about CAA after obstetric epidurals was initially aroused owing to articles by the Arachnoiditis Trust, it is because we realize that: (i) epidural intervention may have an effect on the arachnoid mater, and (ii) that a link between CAA and obstetric epidurals as claimed by the Arachnoiditis Trust would have devastating clinical implications for the women and the practice of obstetric regional analgesia and anaesthesia, that we constructed our review. We do not dismiss CAA as irrelevant in any way.

As Aldrete correctly points out, the remit of our review was to find a link between CAA and obstetric epidurals. We would like to reassure him that we undertook this task with an open mind and reject his accusation of our partiality. We conducted a thorough and impartial review of all the evidence published in peer-reviewed journals.

We are not the only reviewers who have failed to find a link between CAA or indeed arachnoiditis and obstetric epidurals. However, we did report on the few specific cases of CAA directly related to epidural anaesthesia from 1983 to 2000 in Table 2 of our review. We were interested to read of Aldrete’s


8. Reynolds F. Damage to the conus medularis following spinal anaesthesia. Anaesthesia 2001; 56: 238–47


20. Bernards CM, Hill HF. The spinal nerve root sleeve is not a preferred route of distribution of drugs from the epidural space to the spinal cord. Anesthesiology 1991; 75: 827–32


22. Diaz JH. Permanent paraparesis and cauda equina syndrome after epidural blood patch for postdural puncture headache. Anesthesiology 2002; 96: 1515–17


Fig 1 Computer axial tomography, post myelogram showing ‘enhanced’ nerve roots, located abnormally (arrow) on the anterior (upper) half of the dural sac, which have become deformed from a combination of a broadly herniated intervertebral disc, spondylosis and ligamentum flavum hyperthrophy.

Fig 2 Computer axial tomography, post myelogram depicting ‘clumped’ nerve roots (arrow) in the middle of the thecal sac (proliferative phase) at L3–L4 level.

personal series of 374 patients with arachnoiditis and wondered how many were related to obstetric epidurals; unfortunately, this has not been reported or published.

Table 1 in our review referred to a summary of the symptoms reported in CAA and not early changes of arachnoiditis as it was referred to by Aldrete. We would also disagree with Aldrete in his interpretation of Reynolds’ report that ‘an arachnoiditic process’ was involved in the conus damage during spinal anaesthesia. Direct trauma, as evidenced by a syrinx in the conus, was the cause. We have confirmed this with Prof. Reynolds.

We are glad that Aldrete agrees with us that in the light of current evidence, we should not withhold regional analgesia from women in labour, and also that he supports our conclusion that a full clinical examination and MRI investigation will help in the detection and diagnosis of arachnoiditis in obstetrics.

I. Rice1
M. Y. K. Wee2
K. Thomson3
1Isle of Wight, UK
2Poole, UK
3Basingstoke, UK
Anaesthetists understand their work in different ways

Editor—We read with interest the investigation by Larsson and colleagues1 reporting their qualitative study of how trainee anaesthetists understand their work. We congratulate them on their decision to pursue this type of enquiry. Only by addressing those aspects of anaesthetic expertise, which cannot be set out in syllabuses and measured as competencies, can a true picture of the complexity of anaesthetic expertise, which cannot be set out in syllabuses and measured as competencies, can be obtained. We welcome the authors’ responses.

First, we liked the categories that the data suggested, but we wondered if the authors had thought of arranging them into any sort of hierarchy? (We note that they did so with the four categories which they used for experienced anaesthetists in their previous study.)

In the Lancaster expertise study3 we found that, as trainees gain experience, they seem to move from one level of understanding to another, which is not completely separate but rather incorporates and builds on what went before. Hence we suggest, in contrast to the findings of Larsson and colleagues, that changes to more comprehensive ways of understanding do in fact take place over time and this is brought about by the developing relationship between tacit and explicit knowledge.

Furthermore, we would challenge the authors’ assertion that their category F—where experience from patients is used to learn new things—is exclusive to trainees. One of Larsson and colleagues’ transcripts referred to a trainee supervising a nurse and how he/she recognized when the nurse had a problem. We recognize that this is not directly within the scope of their work, but to what extent would the authors expect to see the same breadth of understanding in a nurse anaesthetist?

Finally, we would endorse the authors’ implication that defining different aspects of the anaesthetist’s role will help trainees (and specialists) further their understanding.

Although not a finding from our study, we have previously attempted to suggest a number of roles or styles related to anaesthetic practice. These are in no particular order and there may of course be others, but we offer them as a further contribution to the conceptualization of anaesthetic work:

(i) Craftsman. An anaesthetist who takes pleasure in the simple exercise of his/her hard-won professional skill.
(ii) Workhorse. An anaesthetist who sees their role as ‘getting the job done’.
(iii) Salesman. An anaesthetist who is not as competent as they can make themselves appear by their clinical behaviour.
(iv) Engineer. Someone who thinks mechanistically about the process of anaesthesia, making the patient follow a predetermined plan where possible.
(v) Ecologist. Someone who works in response to the individuality of the patient (these last two styles are drawn from Kle- mola’s objectivistic and reactive types4).
(vi) Priest. Someone who is aware of the mysteries of anaesthesia—the almost mystical temporary loss of self which although often disregarded by anaesthetists, is of great significance to patients.
(vii) Virtuoso. A true master.

A.F. Smith1
D.S. Goodwin1
M.Mort1
C. Pope2
1Lancaster, UK
2Southampton, UK

Editor—We thank Smith and colleagues for their interest in our study, and would like to respond to the points that they have raised.

Concerning the structural relationship between the categories of description, we have in a previous study reported the different ways specialist anaesthetists understand their work. We described a work map with the understandings arranged in a hierarchical way.2 In the present study,1 trainee anaesthetists gave expression to four similar ways of understanding work (B–E in the article). For the young trainees anaesthesia work is still a fairly diffuse phenomenon and their ways of understanding are not as clear as those of specialist anaesthetists. We are convinced that the categories in the trainees’ group are hierarchically related, but this is a result inferred from the previous study. However, understanding A, ‘the novice’, was not found among specialist anaesthetists and should be regarded as a lower level of understanding work than understanding B.

One result of our two studies is that the novice way of understanding was found only among the trainees. Obviously, young anaesthetists during training move from understanding A to B. They will meet situations were protocol driven anaesthesia will not work and they will be forced to take the step from understanding A to B, after considering the individual patient’s physiology. In addition, all four types of understanding of the specialists were represented already among trainees, indicating that anaesthetists normally do not change their understanding during years of work. This is in line with the findings of educational research that competence development preferentially takes place within the confines of present understanding.5 To acquire a new way of understanding, confrontation with another’s meaning (reflective dialogue) or meeting a provoking situation is necessary.6

‘The learner’ was the predominant way of understanding work for some of the trainees but for none of the specialist anaesthetists. In the phenomenographic method we used, only the predominant ways of understanding the phenomenon in question will be defined. Therefore ‘the learner’ was not defined as a category in the study on specialist anaesthetists. We agree with Smith and colleagues that many anaesthetists do use experience from patients for learning.

The question about nurse anaesthetists is not within the scope of our studies and this part of our answer is my (IL) personal view. I believe that young nurse anaesthetists are, and should be, relying more on protocols and detailed guidelines, whereas experienced nurse anaesthetists can work independently considering the vast amount of tacit knowledge that they express in their work. The anaesthetist should, nevertheless, be very much present in the theatres of which he or she is in charge (usually two or three theatres at a time). This means going in and out at regular intervals, depending on what is going on in theatre and on the nurse’s experience.