

Key Points

1. The survey consisted of 4 hypothetical cases with Chiari and Syringomyelia
2. 72 surgeons answered the survey, representing 90% of the meeting attendees and 50% of the overall society membership
3. The majority of the surgeons reported that they performed 1-10 surgeries a year on patients with both Chiari and syringomyelia and a similar number on patients with just Chiari
4. Despite the lack of symptoms or neurological signs found in (Case 1), a strong majority (85%) said they would treat with decompression surgery, while 15% responded they would follow the patient conservatively; However, there was significant variation when it came to the preferred surgical technique.
5. As the severity of the hypothetical cases progressed, so did the number of surgeons who would operate – 96% for Case 2 and 100% for Cases 3 and 4.
6. Using ultrasound during surgery to decide if opening the dura was necessary, did not appear to be very popular.
7. The most common reason cited for failed surgery was not enough bone being removed, followed by not opening the dura
8. The common complication was pseudomeningocele, with meningitis, spinal instability, and hydrocephalus

Definitions

ASPEN - American Society of Pediatric Neurosurgeons, professional society comprised of board certified pediatric neurosurgeons in the US and Canada

asymptomatic - showing no

Survey Shows Syrinx A Strong Indicator For Surgery

March 31st, 2012 -- A 2006 survey administered at a 2006 meeting of the American Society of Pediatric Neurosurgeons (ASPEN) showed that the presence of a syrinx is a strong indicator for surgery, even absent any symptoms. The ASPEN is a professional society comprised of US and Canadian board certified pediatric neurosurgeons. Several surgeons (Rocque, George, Kestle, Iskandar) designed the survey as a precursor to a multi-center surgical study, and published the results recently in the Journal of Neurosurgery: Pediatrics (it is not clear why there was such a long delay between data collection and the publication of the results).

The survey consisted of 4 hypothetical cases, involving both Chiari and syringomyelia, with varying degrees of symptoms and neurological indications.

Table 1: Hypothetical Clinical Cases in ASPEN Survey

| Case # | Description |
|--------|---|
| 1 | 10 year old boy with a 1cm herniations and large cervical syrinx, but no symptoms and no neurological signs |
| 2 | Same as above with Chiari type headache |
| 3 | Same as above but with severe symptoms and clear indications of neurological problems |
| 4 | 12 year old girl with a 1 cm herniation and a large thoracic-lumbar syrinx and scoliosis |

Respondents were given multiple choice answers regarding whether they would recommend surgery and specifically what techniques they would use. Additional questions asked the surgeons' opinions on the most common reasons for failed surgery, the most common complications, and how many Chiari surgeries they perform a year.

In all, 72 surgeons answered the survey, representing 90% of the meeting attendees and 50% of the overall society membership. The majority of the surgeons reported that they performed 1-10 surgeries a year on patients with both Chiari and syringomyelia and a similar number on patients with just Chiari.

For the asymptomatic situation (Case 1), despite the lack of symptoms or neurological signs, a strong majority (85%) said they would treat with decompression surgery, while 15% responded they would follow the patient conservatively (see Table 2). However, there was significant variation when it came to the preferred surgical technique. While 63% said they would open the dura, that group was split as to whether to also reduce the size of the cerebellar tonsils (36% would not, 27% would). The authors point out that no one would drain the syrinx as the primary treatment in this scenario, which earlier surveys had shown was not an uncommon approach.

Table 2: Preferred Surgical Technique For Various Clinical Cases (72 Respondents)

| | Case 1 | Case 2 | Case 3 | Case 4 |
|--|--------|--------|--------|--------|
| Conservative | 15% | 4% | 0% | 0% |
| Bone Only Decompression | 7% | 6% | 4% | 4% |
| Use Ultrasound to Decide on Duraplasty | 7% | 6% | 4% | 4% |
| Decompression, Duraplasty | 36% | 41% | 38% | 40% |
| Decompression, Duraplasty & Shrink/Remove Tonsils | 27% | 34% | 42% | 35% |

As the severity of the hypothetical cases progressed, so did the number of surgeons who would operate – 96% for Case 2 and 100% for Cases 3 and 4. Similarly, although not to the same extreme, the percentage of surgeons saying they would always open the dura also increased. Interestingly, a technique which has been discussed with some promise in the literature, namely using ultrasound during surgery to decide if opening the dura was necessary, did not appear to be very popular, with only 4%-7% of the surgeons saying they would consider it for any of the cases.

The most common reason cited for failed surgery was not enough bone removed (see Table 3), followed by not opening the dura. Poor patient selection and not restoring normal CSF flow were also commonly cited. The common complication was pseudomeningocele, with meningitis, spinal instability, and hydrocephalus also

symptoms

cervical - the upper part of the spine, neck area

dura - outer layer of the covering of the brain and spine

duraplasty - surgical technique where the dura is opened and a patch is sewn in to expand it

hydrocephalus - condition where there is an accumulation of CSF in the brain

meningitis - inflammation of the covering of the brain/spine

pseudomeningocele - abnormal collection of CSF, possible complication of Chiari surgery

shunt - tube like surgical implant used to divert CSF

thoracic - the middle part of the spine

ultrasound - imaging technique which uses sound waves

cerebellar tonsils - portion of the cerebellum located at the bottom, so named because of their shape

cerebrospinal fluid (CSF) - clear liquid in the brain and spinal cord, acts as a shock absorber

syringomyelia - condition where a fluid filled cyst forms in the spinal cord

warranting attention.

While surveys by their very nature are of limited value, this one does deliver a strong message to patients specifically that the presence of a syrinx is almost always an indication for surgery. Perhaps this is not surprising as any nerve damage caused by a syrinx can be permanent, and you can not tell when such damage will occur.

Table 3:
Most Common Reasons For Failed Chiari Surgery
(72 Respondents)

| Reason | % |
|-------------------------|----|
| Not enough bone removed | 28 |
| No duraplasty | 26 |
| Too much bone removed | 4 |
| Other | 42 |

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Source

[Treatment practices for Chiari malformation type I with syringomyelia: results of a survey of the American Society of Pediatric Neurosurgeons](#). Rocque BG, George TM, Kestle J, Iskandar BJ. J Neurosurg Pediatr. 2011 Nov;8(5):430-7.

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