Acral Dysesthesia: A Diagnostic Criteria for Adult Chiari I Malformation?

Robert A. Scranton MD, Jonathan Lee MD, Rob G. Parrish MD, PhD

Department of Neurological Surgery, Houston Methodist Neurological Institute, Houston, TX
Disclosure

I DO NOT have any financial or organizational relationships with commercial interests or other entities. I hereby certify that to the best of my knowledge, no aspect of my current personal or professional circumstances places me in the position of having a conflict of interest with my duties, responsibilities and exercise of independent judgement as an Officer, Member of the Board of Directors, Nominee for Office, Educational Presenter and/or a representative of AANS/NREF/NPA.
Type I Chiari malformations (CMI) is an entity with impairment of cerebrospinal fluid circulation through the foramen magnum with a heterogeneous list of presenting signs and symptoms. CMI is commonly defined on imaging as cerebellar tonsillar herniation greater than 5mm and 30-70% of patients may present with syringomyelia, but no clear diagnostic criteria exists. CMI usually presents in young adults with cervical pain and headaches that are increased with coughing, sneezing or Valsalva maneuver. A central cord syndrome type presentation may be seen in up to 65%. The authors had noted that a large number of patients present with a symmetric distal extremity loss of temperature sensation in a “stocking-glove” pattern, a finding we describe as acral dysesthesia. The authors review their experience to determine the percent of patients who present with acral dysesthesia in the setting of CMI.
Methods

Single surgeon retrospective chart review of all CMI patients undergoing operative intervention from 2009-2015. Charts were examined for presenting complaints, signs, symptoms, and exam findings as well as surgical course, recovery and outcome.
Results

76 patients were identified who were treated with suboccipital craniectomy with expansile duraplasty. C1-2 laminectomy was performed until the inferior margin of the cerebellar tonsils was visualized. 86% of patients were identified as presenting with acral dysesthesia. Of this group 15 patients were lost to follow up. Of the 51 patients available for follow up with acral dysesthesia, 82% reported resolution of their presenting complaints. 18% of patients required further intervention or referral to pain management.
Results

Representative patient from this series with a Chiari I malformation who underwent surgical intervention.
Results

Postoperative cisternogram with SPECT CT at 4 and 24 hours post injection of 10mCi of filtered Tc-99m-sulfur colloid showed normal flow of CSF with enlarged subarachnoid space at the area of decompression.
Discussion

Acral dysesthesia was a common exam finding in patients with CMI in this series. Additionally, a majority of patients with this finding had a good surgical outcome in this series. A consensus diagnostic criteria is needed for CMI and acral dysesthesia should be investigated as a possible criterion.