good outcomes and reduce the need for other, more complex, treatment such as microsurgery.

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Continuous Supraclavicular Brachial Plexus Block Influences Surgical Management of Idiopathic Radial Artery Occlusion

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INTRODUCTION: Brachial plexus blocks (BPB) have been utilized to treat sympathetically mediated vasospasm and ischemia.1 Common etiologies for acute ischemia include cannulation injury, traumatic laceration, extramural compression, embolism, and unopposed sympathetic tone with concomitant vasospasm.2,3 We describe a patient who developed hand ischemia of unknown etiology in whom a continuous BPB was performed to determine the potential efficacy of a surgical sympathectomy as a therapeutic intervention. To the authors’ knowledge, use of a continuous BPB to guide surgical management of persistent radial artery occlusion following idiopathic radial artery occlusion has not been reported.

RESULTS: A 47-year-old woman presented with thumb, index, and middle finger paresthesia, pain, and cyanotic discoloration. She was diagnosed with spontaneous distal radial artery occlusion. The patient underwent surgical thrombectomy of the radial artery, and postoperative thrombolytic therapy was initiated. Twelve days later, she developed severe radial artery vasospasm causing identical symptoms to the initial presentation. After consultation with the acute pain service, the patient was treated with a supraclavicular brachial plexus catheter with continuous local anesthetic infusion. The patient reported symptom relief, and signs of ischemia had resolved. The patient then elected to undergo a surgical sympathectomy. At five months postoperative follow-up, the patient reports returning to normal work duties and no impairment of daily living activities.

DISCUSSION: Sympathectomy of the upper extremity has been an effective treatment for vasospastic disease. A sympathectomy can terminate vasospasm and reduce pain or even eliminate it. Surgical sympathectomy in the hand carries significant risk. Complications include irreparable terminal vessel damage resulting in limb ischemia and possible need for amputation and functional reorganization of nerves with recurrence of symptoms.4

The authors propose a preoperative chemical sympathectomy trial adds significant clinical data in support of surgery if there is symptom relief. Preoperative chemical sympathectomy via BPB provided both diagnostic and therapeutic benefit to this patient with refractory vasospasm of the upper extremity. A BPB with local anesthetic simulated the lasting effects of a surgical approach to decrease sympathetic tone. Continuous BPB was associated with decreased morbidity compared to the risk of microsurgical sympathectomy in this setting of diseased and injured vessels. This data suggests if pharmaceutical blockade of sympathetic tone to the upper extremity relieved symptoms, surgical sympathectomy will provide a definitive cure.

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A Study of 39,478 Firearm Injuries in the Pediatric Population: Trends over Time and Disparities in Flap Reconstruction

**Presenter: Austin D. Chen**

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**INTRODUCTION:** Firearm injuries in children and adolescents have only been investigated in a few national studies describing patient hospitalization characteristics, without analyzing regional trends or treatment modalities. Plastic surgeons have a unique role in reconstruction of firearm-related defects. The aim of our study is to investigate national and regional trends of firearm injuries and flap reconstruction, as well as injuries, outcomes and disparities in patient characteristics.

**METHODS:** A retrospective analysis of the Healthcare Cost and Utilization Project Kids’ Inpatient Database between 2000–2012 for patients ≤20 years admitted with firearm injuries was performed. The Cochran-Armitage test was used to evaluate national and regional trends in firearm and flap reconstruction over time. Patient characteristics, injuries and outcomes were analyzed for non-flap reconstruction (NFR) and flap reconstruction (FR).

**RESULTS:** From 2000 to 2012, 39,476 pediatric patients were admitted for firearm injuries. There was no significant change in incidence per one million population (2000: 111.40, 2003: 101.34, 2006: 123.80, 2009: 109.32, 2012: 91.85 per million). Flap reconstruction has significantly increased (2.57% to 3.34%, p=0.003). Northeast and West regions both show a significant increase in FR from 1.90% to 3.10% (p=0.034 and p=0.004, respectively). There were more male FR patients compared to NFR patients (92.3% vs. 89.9%, p=0.009). There were significant differences in ethnicity (p<0.001), insurance (p<0.001), and income (p<0.001). Patients undergoing FR were more often Caucasian (28.6% vs. 16.3%) with government (46.2% vs. 44.5%), private (28.4% vs. 25.2%) or ‘other’ (8.4% vs. 7.5%) insurance status. There were significant differences in hospital size (p<0.001), teaching status (p<0.001) and region (p<0.001). Patients undergoing FR were more often admitted at large (76.9% vs. 71.8%), urban teaching (87.8% vs. 81.9%) centers in the Midwest (22.7% vs. 22.4%) and South (42.1% vs. 34.4%). Patients with FR had significantly more infections (4.7% vs. 1.1%, p<0.001), respiratory complications (10.5% vs. 8.1%, p=0.004), wound dehiscence (0.6% vs. 0.4%, p<0.001) and acute renal failure (2.7% vs. 0.7%, p<0.001). A significantly greater number of NFR patients had concomitant injuries (p<0.001).

**CONCLUSIONS:** Flap reconstruction for firearm injuries is an important aspect of plastic surgery, with an increase in the number of these procedures done over the years. Differences in patient characteristics for patients receiving flap reconstruction and region-specific variation should be further investigated.

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