



## Craniosynostosis Program Research

Peer-reviewed journal articles:

1. Smyth MD, Tennenbaum MJ, Kaufman C, Kane AA. 'Clamshell Craniotomy': a technique for previously uncorrected sagittal craniosynostosis in older children. *Journal of Neurosurgery: Pediatrics* 105:245-51, 2006. (cover article)
2. Johnston J, Vyas N, Kane AA, Molter D, Smyth MD: Giant intracranial teratoma with epignathus in a neonate: Case report and review of the literature. *Journal of Neurosurgery: Pediatrics*, 106:232-236, 2007.
3. Seto ML, Hing AV, Chang JC, Hu M, Kapp-Simon KA, Patel PK, Burton BK, Kane AA, Smyth MD, Hopper R, Ellenbogen RG, Stevenson K, Speltz ML, Cunningham ML. Isolated sagittal and coronal craniosynostosis associated with TWIST box mutations. *American Journal of Medical Genetics Part A*, 143A: 678-686, 2007.
4. Shah M, Smyth MD, Woo A. Adverse facial edema associated with off-label use of rh-BMP-2 in cranial reconstruction for craniosynostosis: case report. *Journal of Neurosurgery: Pediatrics* 1:255-257, 2008.
5. Reynolds MR, Blackburn SL, Smyth MD. Ossified pseudomeningocele following Chiari decompression in a patient with Kleeblattshädel deformity: Case report and review of the literature. *Journal of Neurosurgery: Pediatrics* 2:203-06, 2008.
6. Perlyn C, Nichols C, **Woo AS**, Becker D, Kane A. Le premier siècle: One hundred years of progress in the treatment of Apert syndrome. *Journal of Craniofacial Surgery*. May 2009. Volume 20(3): 801-806. PMID: 19387362.
7. Lee A, Van Pelt A, Smyth MD, Pilgram TK, Govier DP, Woo A, Kane AA. Comparison of perceptions and treatment practices between neurosurgeons and plastic surgeons for infants with deformational plagiocephaly. *Journal of Neurosurgery: Pediatrics*, 5(4) 368-74, 2010 (cover article).
8. Lipira, A.B., Gordon, S., Darvann, T.A., Hermann, N.V., Van Pelt, A.E., Naidoo, S.D., Govier, D. & Kane, A.A. Helmet versus active repositioning for plagiocephaly: a three-dimensional analysis. *Pediatrics*. 2010 October:126(4): e936-945.
9. Mefford HC, Shafer N, Antonacci F, Tsai JM, Park S, Hing AV, Rieder MJ, Smyth MD, Speltz ML, Eichler EE, Cunningham ML. Copy number variation analysis in single

suture craniosynostosis: multiple rare variants including RUNX2 duplication in two cousins with metopic craniosynostosis. *Am J Med Genet A*. Sep;152A(9):2203-10, 2010.

10. Shah MN, Petersen DJ, Naidoo S, Woo AS, Kane AA, Smyth MD. Endoscopically-assisted vs. open repair for sagittal craniosynostosis: The St. Louis Children's Hospital experience. *Journal of Neurosurgery: Pediatrics* 8:165-170, 2011.
11. Mendonca D, Naidoo SD, Skolnick G, Skladman R, Woo AS. Comparative study of cranial anthropometric measurement by traditional calipers to computed tomography and 3D photogrammetry. *Journal of Craniofacial Surgery*. July 2013. Volume 24(4): 1106-1110. PMID: 23851749.
12. Yarbrough CK, Smyth MD, Patel KB, Huang A, Ranalli NJ, Kane AA, Woo AS. Delayed synostoses of uninvolved sutures after surgical treatment of non-syndromic synostosis. *Journal of Craniofacial Surgery* 25(1):119-23, 2014.
13. Vogel T, Woo A, Patel K, Kane A, Naidoo S, Smyth MD. A comparison of costs associated with endoscope-assisted strip craniectomy and open cranial repair for infants with sagittal synostosis. *Journal of Neurosurgery: Pediatrics* 13:324-31, 2014.
14. Ghosh T, Skolnick G, Patel K, Smyth MD, Woo A. Calvarial thickness and diploic space development in children with sagittal synostosis as assessed by computed tomography. *Journal of Craniofacial Surgery*, May 25(3): 1050-5, 2014.
15. Skolnick G, Naidoo SD, Patel KB, Woo AS. Analysis of digital measures of cranial vault asymmetry for assessment of plagiocephaly. *Journal of Craniofacial Surgery*. July 2014. Volume 25(4): 1178-1182. PMID: 25006892.
16. Gangopadhyay N, Shah M, Skolnick GB, Patel KB, Naidoo SD, Woo AS. Point of maximum width: A new measure for anthropometric outcomes in patients with sagittal synostosis. *Journal of Craniofacial Surgery*. July 2014. Volume 25(4): 1226-1229. PMID: 25006901.
17. Hawasli AH, Beaumont TL, Vogel TW, Woo AS, Leonard JR. Acalvaria. *Journal of Neurosurgery: Pediatrics*. August 2014. Volume 14(2): 200-202. PMID: 24926969.
18. Russel A, Skolnick GB, Patel K, Woo A, Smyth MD. The path of the superior sagittal sinus in unicoronal synostosis. *Child's Nervous System*, 30 (10), 1701-1709, 2014.
19. Naidoo, S.D. & Cheng, A.L. Long-term satisfaction and parental decision making about treatment of deformational plagiocephaly. *The Journal of Craniofacial Surgery*. 2014; 25(1): 160-165.

20. Salehi, A., Ott, K., Skolnick, G., Naidoo, S., Woo, A., Smyth, M. & Patel, K.B. Neosuture formation after endoscopic-assisted craniostyostosis repair. *Plastic and Reconstructive Surgery*. 2014 Oct;134(4 Suppl 1):22-3.
21. Le M-B, Woo A, Patel K, Skolnick G, Naidoo S, Smyth MD. Assessing long-term outcomes of open and endoscopic sagittal synostosis reconstruction using three-dimensional photography. *Journal of Craniofacial Surgery*, 25:573-6, 2014.
22. Nguyen DC, Naidoo SD, Skolnick GS, Kane AA, Woo AS, Patel KB, Smyth MD. Endoscopic-assisted treatment of sagittal craniostyostosis and calcified cephalohematoma. *Journal of Craniofacial Surgery* 25:2127-9, 2014.
23. Zubovic E, Woo AS, Skolnick GB, Naidoo SD, Smyth MD, Patel KB. Cranial base and posterior cranial vault asymmetry after open and endoscopic repair of isolated lambdoid craniostyostosis. *Journal of Craniofacial Surgery* 26:1568-73, 2015.
24. Ghenbot R, Patel K, Skolnick G, Naidoo SD, Smyth MD, Woo AS. Effects of open and endoscopic surgery on skull growth and cranial vault volumes in sagittal synostosis. *Journal of Craniofacial Surgery*, Jan 26(1): 161-164, 2015.
25. Huang AH, Sun HH, Skolnick GB, Woo AS. Thickness of calvarium and diploic space in children ages 0 to 17 as assessed by computed tomography. *European Journal of Plastic Surgery*. [Published online January 20, 2015]. DOI: 10.1007/s00238-014-1060-3
26. Nguyen D, Smyth MD, Skolnick G, Woo A, Patel K. Are endoscopic and open treatments of metopic synostosis equivalent in treating trigonocephaly and hypotelorism? *Journal of Craniofacial Surgery*, Jan 26(1), 129-134, 2015.
27. Derderian CA, Heppner C, Craddock MM, Woo AS, Patel KB, Smyth MD, Weprin BE, Seaward J, Smartt JM, Kane AA. The effects of whole-vault cranioplasty versus strip craniectomy on long-term neuropsychological outcomes in sagittal craniostyostosis. *Plastic and Reconstructive Surgery*. July 2015. Volume 136(1): 114e-115e. PMID: 25811700.
28. Skolnick GB, Naidoo SD, Patel KB, Woo AS. Comparison of Direct and Digital Measures of Cranial Vault Asymmetry for Assessment of Plagiocephaly. *Journal of Craniofacial Surgery*. [Epub ahead of print: August 6, 2015].

29. Dvoracek LA, Skolnick GB, Naidoo S, Smyth MD, Woo AS, Patel KB. Comparison of traditional vs normative cephalic index in patients with sagittal synostosis: Measure of scaphocephaly and postoperative outcome. *Plastic and Reconstructive Surgery* 136:541-8, September 2015.
30. Naidoo SD, Skolnick GB, Patel KB, Woo AS, Cheng A. Long-term outcomes in treatment of deformational plagiocephaly and brachycephaly using helmet therapy and repositioning: a longitudinal cohort study. *Child's Nervous System*. September 2015. Volume 31(9): 1547-1552. PMID 26033379.
31. Park SS, Beyer RP, Smyth MD, Clarke CM, Timms AE, Bammler TK, Stamper BD, Mecham BH, Gustafson JA, Cunningham ML. Osteoblast differentiation profiles define sex specific gene expression patterns in craniosynostosis. *Bone*, 76:169-76, 2015.
32. Afshin Salehi M.D., M.S., Katie Ott B.A., Gary Skolnick B.S., Sybill D. Naidoo Ph.D. R.N. C.P.N.P., Albert S. Woo M.D., Kamlesh Patel M.D., Matthew D. Smyth M.D. Neosuture formation after endoscopic-assisted craniosynostosis repair. Accepted with revisions to the *Journal of Neurosurgery: Pediatrics*, May 2015.
33. Han R, Patel K, Woo A, Naidoo S, Smyth MD. Characterization of complications associated with open and endoscopic craniosynostosis surgery at a single institution. Accepted with revisions to the *Journal of Neurosurgery: Pediatrics*, July 2015.

#### Chapters/textbooks:

1. Smyth MD, Marchac D, Renier D: Syndromic Craniosynostosis: Open Surgery. *Youman's Textbook of Neurological Surgery*, 6<sup>th</sup> edition. Winn HR (ed). Elsevier, 2011.

#### National presentations:

1. Smyth MD, Kaufman C, Kane AA. "Clamshell Craniotomy": a technique for previously uncorrected sagittal craniosynostosis. Platform presentation, Joint Pediatric Section, Orlando, FL 2005.
2. Lee A, Van Pelt A, Kane AP, Woo A, Smyth MD. Comparison of perceptions and treatment practices between neurosurgeons and plastic surgeons for infants with deformational plagiocephaly. Platform presentation, AANS/CNS Joint Pediatric Section, Miami, FL 2007.
3. Shah MN, Lee A, Petersen JD, Naidoo S, Woo AS, Kane AA, Smyth MD. The St. Louis Children's Hospital experience with endoscopically-assisted sagittal synostosis repair. Platform presentation to the AANS/CNS Joint Pediatric Section, Cleveland OH, 2010.
4. Mendonca D, Naidoo S, Smyth MD, Patel K, Woo A. Endoscopic correction of 101 craniosynostosis cases: The St. Louis Children's Hospital Experience. Platform presentation to the Indian Society of Cleft Lip, Palate and Craniofacial Anomalies international meeting, Bangalore, India, Jan 27, 2012.
5. Darvann TA, Hermann NV, Ghafory M, Onder S, Larsen P, Mercer D, Scheve S, Govier D, Ersboell BK, Kreiborg S, Smyth MD, Kane AA. A Method for quantitative

comparison of head shape outcomes: endoscopic versus open surgery for sagittal synostosis. American Cleft Palate-Craniofacial Association Annual Meeting, San Jose, CA April 18, 2012.

6. Vogel T, Woo A, Patel K, Kane A, Naidoo S, Smyth MD. A comparison of costs associated with endoscope-assisted strip craniectomy and open cranial repair for infants with sagittal synostosis. Platform presentation, AANS/CNS Joint Pediatric Section, St. Louis, MO, 2012.
7. Ghosh T, Woo A, Patel K, Smyth MD. Calvarial thickness and diploic space development in children with sagittal synostosis as assessed by computed tomography. Platform presentation, AANS/CNS Joint Pediatric Section, St. Louis, MO, 2012.
8. Ghenbot R, Woo A, Patel K, Skolnick G, Smyth MD. Skull growth and cranial vault volumes in sagittal synostosis. Platform presentation, AANS/CNS Joint Pediatric Section, St. Louis, MO, 2012.
9. Le M-B, Woo A, Patel K, Skolnick G, Naidoo S, Smyth MD. Assessing long-term outcomes of sagittal synostosis reconstruction using three-dimensional photography. Platform presentation, 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies. May 2013, Orlando FL.
10. Yarbrough CK, Huang A, Ranalli NJ, Patel KB, Smyth MD, Woo AS. Delayed synostosis of an unrelated suture after surgical treatment of non-syndromic synostosis - a case series. Platform presentation, 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies. May 2013, Orlando FL.
11. Domeshek L, Patel K, Skolnick G, Naidoo S, Smyth MD, Woo A. Long-term outcomes of unicoronal craniostylosis surgery. Platform presentation, 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies. May 2013, Orlando FL.
12. Huang A, Patel K, Naidoo S, Skolnick G, Smyth MD, Woo A. Comparison of open vs endoscopic surgery to correct metopic synostosis. Platform presentation, 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies. May 2013, Orlando FL.
13. Huang A, Patel K, Naidoo S, Skolnick G, Smyth MD, Woo A. Point of maximal width. Platform presentation, 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies. May 2013, Orlando FL.
14. Ghenbot R, Skolnick GB, Patel K, Naidoo S, Smyth MD, Woo A. Cranial vault volume in unoperated sagittal synostosis—A case study and comparison. Platform presentation, 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies. May 2013, Orlando FL.
15. Huang A, Patel K, Naidoo S, Skolnick G, Smyth MD, Woo A. Endoscopic craniostylosis: effect of external factors including helmet center. Platform presentation, 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies. May 2013, Orlando FL.
16. Zubovic E, Skolnick G, Patel K, Naidoo S, Smyth MD, Woo A. Cranial base asymmetry after open and endoscopic repair of isolated lambdoid craniostylosis. American Cleft Palate-Craniofacial Association. Indianapolis, IN, March 2014.

17. Zubovic E, Skolnick G, Patel K, Naidoo S, Smyth MD, Woo A. Posterior cranial vault asymmetry in lambdoid craniosynostosis after open and endoscopic repair. American Cleft Palate-Craniofacial Association. Indianapolis, IN, March 2014.
18. Russell A, Skolnick G, Patel K, Naidoo S, Woo A, Smyth MD. The path of the superior sagittal sinus in unicoronal synostosis. American Cleft Palate-Craniofacial Association. Indianapolis, IN, March 2014.
19. Nguyen D, Skolnick G, Naidoo S, Woo A, Smyth MD Patel K. Are endoscopic and open treatments of metopic synostosis equivalent in treating trigonocephaly and hypotelorism? American Cleft Palate-Craniofacial Association. Indianapolis, IN, March 2014.
20. Afshin Salehi M.D., M.S., Katie Ott B.A., Gary Skolnick B.S., Sybill D. Naidoo Ph.D. R.N. C.P.N.P., Albert S. Woo M.D., Kamlesh Patel M.D., Matthew D. Smyth M.D. Neosuture formation after endoscopic-assisted craniosynostosis repair. Digital Poster presentation, Congress of Neurological Surgeons Annual Meeting, Boston 2014.
21. Dvoracek LA, Skolnick GB, Naidoo SD, Smyth MD, Woo AS, Patel KB. Traditional vs normative cephalic index in patients with sagittal synostosis: measures of scaphocephaly and postoperative outcome. Platform presentation, ACPA 2014.
22. Kamlesh Patel M.D., Afshin Salehi M.D., M.S., Katie Ott B.A., Gary Skolnick B.S., Sybill D. Naidoo Ph.D. R.N. C.P.N.P., Albert S. Woo M.D., Matthew D. Smyth M.D. Neosuture formation after endoscopic-assisted craniosynostosis repair. Platform presentation, Plastic Surgery The Meeting 2014, Chicago, IL October 2014.
23. Dlouhy B, Patel K, Woo A, Naidoo S, Smyth MD. Endoscopic repair of sagittal craniosynostosis—our first 100. Top Poster Presentation, AANS/CNS Joint Pediatric Section annual meeting, Amelia Island FL, Dec 4, 2014.
24. Dlouhy B, Patel K, Woo A, Naidoo S, Smyth MD. Endoscopic-assisted management of sagittal synostosis: Wide vertex suturectomy and barrel stave osteotomies versus narrow vertex suturectomy. Platform presentation, AANS/CNS Joint Pediatric Section annual meeting, Amelia Island FL, Dec 4, 2014.
25. Han R, Patel K, Woo A, Naidoo S, Smyth MD. Characterization of complications associated with open and endoscopic craniosynostosis surgery at a single institution. Top Poster Presentation, AANS/CNS Joint Pediatric Section annual meeting, Amelia Island FL, Dec 4, 2014.
26. Patel K, Skolnick G, Naidoo S, Woo A, Smyth MD, Pineda J. Cerebral blood flow in craniosynostosis: evaluation by MRI. Platform presentation, American Cleft Palate-Craniofacial Association (ACPA) Annual Meeting, April 20-25, Palm Springs, CA.
27. Nguyen D, Patel K, Skolnick G, Naidoo S, Dlouhy B, Woo A, Smyth MD. Endoscopic repair of sagittal craniosynostosis: an evolution in care. Platform presentation, American Cleft Palate-Craniofacial Association (ACPA) Annual Meeting, April 20-25, Palm Springs, CA.
28. Yen D, Nguyen D, Patel K, Skolnick G, Naidoo S, Kane A, Smyth MD, Woo A. Evaluation of direct surgical remodeling of frontal bossing in patients with sagittal

synostosis. Poster presentation, American Cleft Palate-Craniofacial Association (ACPA) Annual Meeting, April 20-25, Palm Springs, CA.

29. Nguyen D, Patel K, Skolnick G, Naidoo S, Dlouhy B, Woo A, Smyth MD. Endoscopic repair of sagittal craniosynostosis: an evolution in care. Platform presentation, American Association of Plastic Surgeons (AAPS) Annual Meeting, April 11-14, Scottsdale, AZ.
30. Gangopadhyay N, Shah M, Skolnick G, **Patel KB**, Naidoo S, Woo A. Point of Maximum Width: A New Measure for Anthropometric Outcomes in Patients with Sagittal Synostosis. *J of Craniofacial* 25:1226-1229, 2014.

#### National courses taught:

1. Matthew Smyth: "Endoscopic Craniosynostosis Surgery." 1<sup>st</sup> Annual combined ventricular and skull base endoscopy course for neurosurgeons. PASE, St. Louis University, Sept 19-21, 2013.
2. Matthew Smyth: "Endoscopic-assisted Craniosynostosis Surgery." 2<sup>nd</sup> Annual combined ventricular and skull base endoscopy course for neurosurgeons. PASE, St. Louis University, Sept 19-21, 2014.
3. Matthew Smyth: "Endoscopic-assisted Craniosynostosis Surgery." 3<sup>rd</sup> Annual combined ventricular and skull base endoscopy course for neurosurgeons. PASE, St. Louis University, Aug 27-29th, 2015.
4. Matthew Smyth: Traditional Open vs Endoscopic-assisted repair of single suture synostosis. Craniofacial Symposium 2015: A Primer for Pediatricians. Weill Cornell Medical College, New York, NY, January 8<sup>th</sup> 2015.
5. Smyth, Woo, Patel, Naidoo: Endoscopic-assisted repair of craniosynostosis. Didactic course, American Cleft Palate-Craniofacial Association (ACPA) Annual Meeting, April 24th, Palm Springs, CA.
6. **Patel KB**. Endoscopic Craniosynostosis. Hanger Education Fair and National Meeting. Las Vegas, 2014 and 2015.

#### Plagiocephaly papers

Naidoo S, Skolnick G, **Patel KB**, Woo A, Cheng A. Long-term outcomes in treatment of deformational plagiocephaly and brachycephaly using helmet therapy and repositioning: a longitudinal cohort study. *Childs Nervous System*. 31: 1547-1552, 2015

Skolnick G, Naidoo S, Nguyen DC, **Patel KB**, Woo A.  
Comparison of Direct and Digital Measures of Cranial Vault Asymmetry for Assessment of Plagiocephaly  
*J of Craniofacial (Forthcoming)*

Skolnick G, **Patel KB**, Naidoo S, Woo A. Analysis of Digital Measures of Cranial Vault Asymmetry for Assessment of Plagiocephaly.  
*J of Craniofacial* 25: 1178-1182, 2014

### **Cleft papers**

Nguyen DC, **Patel KB**, Skolnick G, Grames L, Stahl M, Woo A. Progressive Tightening of the Levator Veli Palatini Muscle during Intravelar Veloplasty Improves Speech Results in Primary Palatoplasty. *Plast Reconstr Surg. (Forthcoming)*

Huang A, **Patel KB**, Maschhoff C, Huebener D, Skolnick G, Naidoo S, Woo A. Occlusal Classification in Relation to Original Cleft Width in Patients with Unilateral Cleft Lip and Palate *CPCJ 52 (5): 574-578, 2015*

**Patel KB**, Mulliken JB. Correction of the Vestibular Web during Primary Repair of Unilateral Cleft Lip. *Plastic. Recon. Surg. 134: 600e-607e, 2014*

Mendonca D, **Patel KB**, Skolnick G, Woo A. Anatomical Study of the Effects of Five Surgical Maneuvers on Palate Movement. *JPRAS 67: 764-769, 2014*

### **Non cleft papers**

Farber SJ, Snyder-Warwick A, Skolnick G, Woo A, **Patel KB**. Maxillomandibular Fixation by Plastic Surgeons: Cost Analysis and Utilization of Resources. *Annals Plast. Surg. (Forthcoming)*

Nguyen DC, Shahzad F, Snyder-Warwick A, **Patel KB**, Woo AS. Transcaruncular approach for treatment of medial wall and large orbital blowout fractures Craniomaxillofacial Trauma and Reconstruction *(Forthcoming)*

**Patel KB**, Mendonca D, Skolnick G, Woo AS. Anatomical Study of the Medial Crura and its Effect on Nasal Tip Projection in Open Rhinoplasty. *Plast. Recon. Surg. 132: 787-793, 2013*

**\*As of 9/28/15**