

muscle, necessary for reinnervation, after nerve injury. Gpr126 signaling, therefore, is integral not only to myelinating SCs, but also to non-myelinating tSC function at the NMJ. The integral function of Gpr126 in tSCs at the NMJ provides the framework for new therapeutic targets for neuromuscular disease.

195

Efficacy Of Amniotic Membrane Nerve Wraps In A Rat Sciatic Nerve Reverse Autograft Model

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Purpose: Nerve wraps provide a protective encasement around peripheral nerves following neurotomy. Various types of nerve wraps are available for use in clinical practice. Human amniotic membrane (hAM) is an easily obtainable FDA-approved biomaterial with no donor site morbidity and minimal inflammatory response. hAM nerve wraps provide a neurotrophic effect, containing human mesenchymal stem cells (hMSC) and human amniotic epithelial cells (hAEC) which have multilineage differentiation potential and can synthesize and secrete neurotrophic factors, differentiate into neural phenotypes and enhance Schwann cell proliferation. The purpose of this study was to evaluate the efficacy of hAM nerve wraps in a rat sciatic nerve reverse autograft model.

Methods: Lewis rats underwent sciatic nerve injury and repair in which a 10-mm gap was bridged with a reverse autograft combined with either no nerve wrap (control) or hAM nerve wrap. Functional evaluation including the Sciatic Functional Index (SFI) and CatWalk gait analysis was performed at baseline, 4, 8 and 12 weeks. Electrophysiological studies were conducted at 8, 10 and 12 weeks. Gastrocnemius muscle weight ratios and nerve adhesions were evaluated at 12 weeks. Axonal regeneration, perineural fibrosis and muscle atrophy were investigated via histological evaluation and retrograde labeling at 12 weeks.

Results: Immunohistochemical analysis demonstrated that hAM-treated animals had significantly higher numbers of

axons compared to controls. hAM-treated nerves had significantly less perineural fibrosis and nerve adhesions compared to controls. Analysis of SFI demonstrated significant improvements in the hAM-treated group compared to control groups, and CatWalk analysis demonstrated that hAM treated animals had a higher average mean stand time on the injured limb as well as an improved mean swing time at 8 and 12 weeks; however, these differences were not significant. The ratio of experimental to control gastrocnemius weights was significantly greater in hAM compared to control groups. The normalized CMAP of hAM animals was significantly improved compared to controls at 10 weeks. Retrograde labeling demonstrated that significantly greater numbers of motoneurons were regenerating axons in the hAM group compared to controls.

Conclusion: Functional, electrophysiological and histological evaluation demonstrated that hAM nerve wraps improved outcomes compared to controls. Anti-inflammatory and pro-regenerative effects of hAM may result in reduced scarring and improved axonal regeneration and functional recovery, make it a promising biomaterial for clinical applications in peripheral nerve repair.

196

Robotic Assisted Vaginoplasty: A Multi-Disciplinary Technique For Gender Affirmation

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Purpose: Gender affirmation “bottom” surgery is a critical component in treating gender dysphoria. However, male to female vaginoplasty is associated with many complications including wound dehiscence, stricture development, infection and rectal injury. The authors describe a multidisciplinary robotic-assisted technique to alleviate these complications.

Methods: All patients who underwent robot-assisted vaginoplasty by a single reconstructive urologist (N.P.) and plastic surgeon (J.K.) were included. A star-shaped perineal flap was raised from the base of the scrotum extending to the base of the penis to construct the inferior neovaginal introitus. The neoclitoris was constructed from the dorsal glans penis by utilizing an inverted-W incision and raised on a neurovascular pedicle superficial to the investing fascia of the corpora. The penile skin was then degloved. Urethroplasty was performed

by separating the urethra from the corpora down to the pubic bone and creating a new urethral meatus at the base of the corporal crus stumps following penectomy. The Da Vinci robot (Intuitive, Sunnyvale, CA) was utilized to carefully create the neovaginal canal space in the plane of the rectoprostatic fascia via an abdominal approach through the peritoneal reflection as well as harvest a peritoneal graft. This graft is used as a strip of mucosal-like tissue for a more anatomic neovagina and is sutured to the scrotal skin graft over a vaginal conformer. The graft construct is sutured to the remaining penile shaft skin and the entire construct is then inverted, passed through the perineal body into the described robotically-created space. The apex of the neovaginal lining created by the skin graft-peritoneal graft construct is then sutured to the peritoneal reflection with barbed suture in 2 layers intra-corporally via the robot. Vaginal packing is placed for the entire depth of 15 cm and removed in the OR on post-operative day 5 under sedation. Charts were reviewed for demographics, operative details, and complications.

Results: Ten robotic-assisted vaginoplasties were successfully performed; average age was 39 and average BMI 26.9, with 5 active smokers. All patients were taking estradiol hormone therapy for at least one year. One patient developed stenosis 5 months postoperatively and one developed partial introital necrosis due to active smoking; after minor revision, both healed successfully. There were no intra-abdominal complications. Patients had an average introitus width of 3 cm and vaginal depth of 12 cm at a mean follow-up of 14.8 months. All patients were cleared for sexual intercourse at last follow-up, 9/10 were able to achieve orgasm through direct neo-clitoral stimulation and 10/10 had return of sensation to light touch of the neo-clitoris.

Conclusion: Robotic-assisted vaginoplasty is safe and effective with a low complication rate and high patency of vaginal introitus width and vaginal depth.

197

Gender Mastectomy And Depression, Anxiety, And Body Image In Transgender Men: A Single-center Prospective Study

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Purpose: There are few prospective studies examining gender-affirming surgery (GAS) with validated instruments. In this study, we report the effect of gender mastectomy on anxiety, depression, body image, and psychosocial functioning in a prospective manner with instruments validated in the general as well as transgender populations.

Methods: Patients undergoing gender mastectomy were administered the PHQ-9, GAD-7, Body Image Quality of Life Index (BIQLI), BREAST-Q Psychosocial and Sexual Functioning subscales, and the BODY-Q Nipple and Chest subscales preoperatively and six months postoperatively. In addition, the BREAST-Q Satisfaction with Decision subscale was administered postoperatively. Paired Student's T-tests were utilized for analysis.

Results: This is an ongoing investigation. A total of 32 individuals have completed this study to date. The mean PHQ-9 score preoperatively was 8.12 and postoperatively was 4.96 ($P=0.003$). The mean preoperative and postoperative GAD-7 scores were 7.71 and 4.00 respectively ($P=0.0004$). There were significant improvements in both psychosocial and sexual functioning related to chest appearance ($P<0.0005$). Satisfaction with contour and nipples significantly improved ($P<0.0005$). Global psychosocial functioning as measured by the BIQLI significantly improved ($P=2.1 \times 10^{-10}$). Patients had a mean satisfaction with decision score of 93.2.

Conclusions: Trans men undergoing gender mastectomy had significant reductions in levels of anxiety and depression, as well as improvements in body image and psychosocial functioning. Patients were extremely satisfied with their decisions to undergo surgery. Although this study is limited by sample size and its single-center nature, the results suggest significant benefits with GAS and highlight the need for further evaluation in a multi-center consortium.

198

Breast Malignancies In Transgender Surgical Patients

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