Background: The radial artery forearm free flap (RFFF) is the workhorse technique for phallus reconstruction. The RFFF provides good cosmesis and potential sensory recovery. However, the donor site is large in comparison to other applications of the RFFF which may increase the potential for donor site morbidity, such as nerve injury, delayed wound healing, and decreased hand strength. This study systematically reviewed the current literature to assess the donor site morbidity associated with RFFF phalloplasty (RFFFP).

Methods: A systematic review utilizing Preferred Reporting Items for Systematic Review and Meta-Analyses guidelines was completed of the current literature pertaining to donor site morbidity after RFFFP. Two investigators independently reviewed the literature to determine eligibility for inclusion. Two hundred sixty-seven studies were reviewed and 10 were included in the final analysis after application of exclusion criteria.

Results: Nine hundred forty flap reconstructions were identified. Gender affirming surgery was the indication in 77.7% (n = 730) of patients. The overall donor site complication rate was 7.9% (n = 74). Skin graft failure occurred in 41 patients (4.5%) and was the most frequent complication. Donor site infection (n = 3, 15.8%), hematoma (n = 1, 0.8%), neuroma (n = 1, 10%), compartment syndrome (n = 1, 0.8%), decreased strength or sensation (n = 15, 4.9%), lymphedema or limb swelling (n = 10, 3.9%), and contracture (n = 2, 6.5%) were also found.

Conclusions: The most common donor site complication after RFFFP is skin graft failure. Decreased forearm sensation and strength affected a significant proportion of patients within each reported cohort. Prospective studies should continue to evaluate donor site morbidity with objective measures, such as grip strength evaluation, and long-term follow-up for vascular changes following radial artery harvest. (Plast Reconstr Surg Glob Open 2019;7:e2442; doi: 10.1097/GOX.0000000000002442; Published online 26 September 2019.)