Nerve grafting is performed to replace cavernous nerves that have been resected during radical prostatectomy for prostate cancer. The intent of this nerve grafting is to treat the erectile dysfunction that is a common problem when nerve sparing surgical techniques are unsuccessful or cannot be accomplished due to the location or extent of the tumor. The sural nerve, the most common donor nerve, is considered expendable and has been used extensively in other nerve grafting procedures, such as brachial plexus and peripheral nerve injuries. A portion of the sural nerve is harvested from one leg and then anastomosed to the divided ends of the cavernous nerve. Other nerves, such as the genitofemoral nerve, have also been used. Grafting may be unilateral or bilateral.

MEDICAL POLICY CRITERIA

Unilateral or bilateral nerve graft is considered not medically necessary in patients who have undergone resection of one or both neurovascular bundles as part of a radical prostatectomy.

SCIENTIFIC BACKGROUND

In order to isolate the specific therapeutic effects of sural nerve grafting and individual patient
differences (clinical and demographic, known and unknown), well-designed randomized clinical trials (RCTs) that compare groups of patients undergoing radical prostatectomy with and without sural nerve grafting are necessary. Primary outcomes of such studies include differences in proportion of patients experiencing improvement in sexual dysfunction (as measured by a standardized assessment tool), and rates of adverse effects. Although informative, evidence from observational studies describing experiences of sural nerve grafted patients is of limited utility in establishing causal relationships; therefore, the focus of the literature appraisal below is on RCTs investigating sural nerve grafting for erectile dysfunction.

**Literature Appraisal**

**Randomized Controlled Trial**

A sole RCT has been identified which compared unilateral nerve sparing radical prostatectomy with, versus without, unilateral sural nerve grafting.\(^1\) The trial was discontinued before full enrollment was achieved because there was adequate data at interim analysis of 107 patients with 2-year follow-up to determine that nerve grafting was not beneficial. At 2-year follow-up, there was no significant difference in erectile or urinary function, quality of life, or time to potency between the 2 groups. The results of this trial warrant cautious interpretation. Patients were not blinded to their treatment group assignment; thus, the possibility of treatment bias cannot be ruled out.

**Nonrandomized Studies**

The remainder of the literature on nerve grafting in association with prostatectomy consists of case series data.\(^2\)–\(^{11}\) While these studies contribute to the body of knowledge by providing direction for future research, evidence from these studies is unreliable due to methodological limitations, such as non-random allocation of treatment and lack of appropriate comparison groups.

**Clinical Practice Guidelines**

**National Comprehensive Cancer Network (NCCN)**

The 2014 NCCN prostate cancer consensus-based guideline states that “Replacement of resected nerves has not been shown to be beneficial” for recovery of erectile function after radical prostatectomy.\(^{12}\) No other evidence-based clinical practice guidelines have been identified which recommend the use of sural nerve grafting in patients undergoing radical prostatectomy.

**Summary**

The available evidence on sural nerve grafting as a treatment of cavernous nerve resection consists of a randomized, controlled trial (RCT) which was discontinued when it was determined there was no benefit from the procedure. Due to the negative findings of this study, and the lack of other controlled studies evaluating unilateral or bilateral nerve grafting, the technique is considered not medically necessary.

**REFERENCES**

1. Davis, JW, Chang, DW, Chevray, P, et al. Randomized phase II trial evaluation of erectile function after attempted unilateral cavernous nerve-sparing retropubic radical prostatectomy with


**CROSS REFERENCES**

None

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There are no specific CPT codes describing nerve grafting of the cavernous nerves. The CPT codes describing nerve grafts specifically identify the anatomic site and do not include the cavernous nerves. Therefore, CPT code 64999 (unlisted procedure, nervous system) should be used to describe the nerve harvest and grafting component of the procedure. A non-specific CPT code for nerve repair, such as
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