

Outpatient anterior cervical microdiscectomy: experience with 106 cases

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Abstract

Cervical disk disease is a common problem. Most commonly, anterior cervical microdiscectomies are performed in a hospital operating room with a 1–3 day inpatient stay. These procedures can be performed on an outpatient basis with minimal morbidity and patients can be discharged in 2–4 h. 106 consecutive patients underwent outpatient cervical microdiscectomies either at a free-standing outpatient surgery center or on an outpatient basis in a hospital operating room. The average post-operative time in the recovery room prior to discharge home was under 3 h. © 1999 Elsevier Science B.V. All rights reserved.

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1. Introduction

Cervical disk disease is a common problem seen on a daily basis by the majority of neurosurgeons. Herniations range from minor to large free fragments and are treated either conservatively or with surgery depending on the clinical situation. Those patients appropriate for an anterior cervical microdiscectomy generally have disk herniations causing medically refractory radicular pain and/or objective evidence of radiculopathy or myelopathy. These candidates must be free of psychological or medical contraindications. The 'ideal' patient has failed all forms of appropriate conservative therapy, has a single level unilateral disk herniation and no significant medical or psychological risk factors. The patients are all counseled pre-operatively in a standard fashion regarding the risks, benefits and alternatives to the procedure. Further detailed discussion is then carried out regarding the specifics of the outpatient protocol so that patients are fully informed of the expected

peri-operative experience and have appropriate expectations post-operatively.

Most commonly, anterior cervical microdiscectomies are performed in a hospital operating room with the inpatient hospital course lasting 1–3 days. The average LOS in this author's personal series over the last 3 years is less than 24 h with the average hospital bill being substantially higher than the charges in an ambulatory surgery center (ASC). By selecting ideal patients for the outpatient surgical environment (Vise M, personal communication) [1–5], coupled with meticulous micro-neurosurgical technique and a specific anesthetic regimen for ambulatory surgery, 106 patients have been successfully operated in an ASC or on an outpatient basis in a hospital operating room. The average post-operative time in the recovery room prior to discharge home has been under 3 h. The average cost per patient is 32% lower than area hospitals, including anesthesia services. Patient satisfaction with the entire outpatient anterior cervical microdiscectomy experience has been extraordinarily high and the surgical outcomes thus far are equal to that which is considered standard for inpatient anterior cervical microdiscectomy.

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2. Materials and methods

Between July 1995 and July 1997, the author performed 106 consecutive outpatient anterior cervical microdiscectomies, 58% males and 42% females, either at a free-standing outpatient surgery center or on an outpatient basis in a hospital operating room. All patients had failed conservative treatment (which included medications, physical therapy and for some patients epidural steroid injections) and symptom duration ranged from 3 weeks to 6 months.

The surgical procedures were all performed under general anesthesia. Induction was performed with propofol, intubation with D-tubocurarine/succinylcholine and maintenance with Euflurane/nitrous oxide. No other anesthetic agents were employed.

All patients were given 2 g of cephazolin and 125 mg of methylprednisolone intravenously at the time of induction. Surgery was performed in the supine position, with the head on a Mayfield headrest, 0.25% marcaine with 1:100000 epinephrine was injected for local anesthesia in a skin crease on the right side of the neck over the affected disk level.

A 2 cm incision in the skin crease was made extending from the mid-line to the right. The platysma was undermined from the subcutaneous tissue, then opened vertically in the direction of its fibers. The plane between the trachea and esophagus medially and the carotid and sternocleidomastoid laterally was then developed using blunt dissection. The pre-vertebral fascia was swept off the anterior longitudinal ligament and the longus colli muscles stripped laterally 2–3 mm. Caspar self-retaining retractors were then placed in the longus colli and needles inserted at two disk spaces. An ear oximeter was used to measure oxygen saturation as a way of detecting possible compromise of blood flow through the right carotid artery during the longus colli retraction. An X-ray was taken to localize the correct level for the microdiscectomy. Following X-ray localization, Caspar distraction screws were placed and the distractor applied across the affected disk space. A radical anterior microdiscectomy was then performed with complete removal of the disk, any osteophytes present, cartilaginous endplates and the posterior longitudinal ligament. Adequate foraminal decompression was always ascertained with foraminotomies performed, if necessary.

Hemostasis was meticulously obtained with bipolar cautery and the wound was then irrigated profusely with bacitracin solution. Small amounts of gelfoam soaked in thrombin were used as necessary to control foraminal venous bleeding and to control bleeding from the holes where the Caspar distractors were placed in the vertebral bodies. Hydrogen peroxide was utilized in the disk space to control bone bleeding in several cases. Closure was accomplished in layers with an absorbable

suture (Vicryl) and steri-strips. Sterile dressings were applied, followed by a soft cervical collar. The patients were then awakened from general anesthesia and brought to the recovery room. Prior to discharge from the recovery room, an additional 80 mg of intravenous methylprednisolone was given. The criteria for discharge were no nausea, ability to take oral fluids, adequate incisional pain control and ability to ambulate and urinate.

Discharge instructions, prescriptions for narcotic pain medication and non-steroidal anti-inflammatory drugs (NSAID's) and/or muscle relaxants (in some cases) were given to the patients. The soft collar was worn for 2 weeks continuously and thereafter only in a car or when the cervical region was sore. A return to work schedule was established with the patients. The earliest returns to work were 3 days post-operatively and the longest 3–4 weeks post-operatively. In this latter category were patients who had strenuous jobs, but were released to light duty work.

3. Results

There were no post-operative infections or hematomas. One patient required Zofran (ondansetron) for post-operative nausea and vomiting. None of the patients required post-operative hospitalization. There have been no recurrent disk herniations in this series. Three patients have required fusion for mechanical neck pain.

A post-operative satisfaction and outcome survey was conducted in conjunction with the first author's Executive MBA program (Ahlowalia G, Brown J, Grismore J, Ronbeck K, Wohns RNW: Survey of Patients Who Have Undergone Outpatient Microdiscectomy. University of Washington EMBA 503 Term Project, 1996). This revealed overall excellent patient satisfaction with clinical outcome and the outpatient experience. Outcome analysis, cost effectiveness and patient satisfaction are the three parameters of the quality of medical services that are of prime interest to physicians, HMO's, insurance companies and patients. The costs associated with outpatient spinal microsurgery are significantly less than for the inpatient approach. A survey was designed to evaluate patient satisfaction and clinical outcomes. Quantitative and qualitative data have been analyzed from the completed surveys. Quantitative parameters include standard demographics and objective measurements of surgical outcome. Qualitative data include such parameters as pain assessment and satisfaction with service and outcome. This survey strongly suggests that outpatient microdiscectomies for cervical disk herniations can be performed with excellent outcomes and quality and high patient satisfaction levels.

4. Conclusion

The purpose of this communication is the portrayal of a successful outpatient regimen for anterior cervical microdiscectomy. Since the follow-up time is limited (1–18 months), the long term results cannot be presented at this time. However, there have been no indications that the results are anything but analogous to the same procedure performed on an inpatient basis. There have been no infections nor any significant problems or complications. Patients have completed satisfaction surveys which have routinely depicted a high satisfaction level and excellent clinical outcomes.

This series suggests that outpatient anterior cervical microdiscectomies can be safely performed with the same positive results as experienced following an inpa-

tient procedure. The advantages include a significant reduction in cost to the patient (and third party payers) and a high level of patient satisfaction. Further studies are needed to confirm these findings.

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