**Lay protocol:**

Anterior cervical discectomy and fusion (ACDF) is a common spinal procedure performed in order to relieve compression of nerve roots and/or the spinal cord in the cervical spine. Compression of these neural elements is generally due to either degenerative bone spurs or else a herniated portion of the soft intervertebral disc. An ACDF involves an incision over the anterior (front) of the neck, removal of the soft intervertebral disc (which is located between two vertebrae in the spine), removal of any disc material or bone spurs that are compressing the nerve root and/or spinal cord ,and placement of bone or bone graft in the place of the disc that was removed. A primary goal of the procedure is to achieve a successful bony fusion across the bone graft that lies between the vertebrae that are located on either side of the excised disc. Once mature, the bony fusion spans the site where the disc was removed. In order to enhance the probability of a successful fusion at this site, some surgeons use a protein termed “bone morphogenetic protein” (BMP) that promotes bone fusion. At very high doses, this protein has been shown to cause increased swelling of the tissues at the surgical site. However, at the currently used, lower doses, the amount of swelling appears minimal, but may still potentially result in an increased level of post-operative swallowing difficulties due to the minimal swelling that may still occur. In an attempt to minimize the potential post-operative swelling following the use of supplemental BMP, some physicians prescribe a course of tapered oral corticosteroids (Medrol dose pack) which acts as a powerful anti-inflammatory, theoretically leading to a decrease in soft tissue swelling. However, at this point there is no evidence whether this intervention is effective in minimizing post-operative swallowing difficulties following BMP assisted ACDF surgery.

We are proposing a study with retrospective and prospective observational “arms”. In the retrospective portion of this study, patients that underwent ACDF with BMP and an oral steroid taper, and patients that have undergone ACDF with BMP, without steroid taper, and patients that have undergone ACDF without BMP between 1 and 2 years ago will be contacted for involvement in this study. Each patient would provide informed consent and if they agree to participation in the study, they will be sent three copies of a 14-question portion of the validated SWOL-QOL measure of swallowing difficulty (dysphagia). The patient will be asked to answer one copy of the 14-point questionnaire in reference to the point in their life prior to their surgery. The second copy of the questionnaire will be answered in regard to their status in the immediate post-operative period (2 days – 2 weeks) post-operatively. The third copy will reflect their current status in regard to dysphagia. The results of these questionnaires will be compiled and compared between the three different surgical / post-operative protocols that are being evaluated (ACDF with BMP and post-op oral steroid taper, ACDF with BMP and no steroid taper, and ACDF without BMP).

The second “arm” will be an observational prospective analysis. In this portion of the study we will monitor 3 groups of patients (30 patients in each group); one with BMP plus a course of post-operative oral steroids, one that underwent ACDF with BMP that did not receive oral steroids post-operatively as well as a control group that undergoes ACDF without the use of BMP. This portion of the study will be observational in nature that at our institution the three attending surgeons involved in this study each currently perform one of the three operative/-post-operative protocols listed above as their standard protocol. Therefore, none of the patients will be receiving an experimental protocol and there will be no randomization process. These three groups will be complete the same 14-question subset of the SWOL-QOL as the patients in the retrospective arm of the study. They will receive this questionnaire pre-operatively, the first day following surgery, and at their regularly scheduled 2 week, 6 week, 3 month, 6 month and 12 month post-operative follow up visits. The survey will take 5 minutes or less to complete, and patients will not have to complete any additional post-operative visits than would normally be performed. Following collection of the data, the patients in each group will compared with each other at each time point in order to determine if the use of a post-operative course of oral steroids is useful in minimizing post-operative swallowing difficulties following ACDF with BMP.