TITLE: Periacetabular Osteotomy in U.S. Military Personnel: A Single Center's Experience

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INTRODUCTION: The periacetabular osteotomy (PAO) is a powerful tool used to correct acetabular pathoanatomy in an effort to preserve the articular integrity of the hip. The primary focus of PAO literature to date has been survivorship from the time of PAO until total hip arthroplasty (THA). However, the long-sighted nature of this endpoint overlooks the impact of this pathology and procedure on young, active patients. The goal of this study was to assess the impact of the PAO on the military careers of young, active service members.

METHODS: A retrospective review identified 38 patients who underwent PAO performed by a single surgeon at an academic, military medical center from January 2014 through April 2017. Twenty-one of the patients were active duty United States military service members (16 female, 5 male) and had a minimum 28 months of post-operative follow-up at the time of review. Medical and radiographic records were reviewed by an individual not directly involved in the patients' care. Preoperative and postoperative duty restrictions (i.e. unrestricted versus temporary or permanent profile) were noted, and the status of referrals to the U.S Army and Air Force Medical Evaluation Boards (MEB) was queried.

RESULTS: The average age at surgery was 25.6 years (range, 19-40y) with three patients having undergone an arthroscopic hip procedure prior to PAO. Twenty patients underwent PAO for residual adult dysplasia while one underwent surgical correction with capsulorraphy for iatrogenic dysplasia with gross instability following an outside hip arthroscopy. Fourteen patients (82.4%) were on temporary duty restrictions (TDR) due to their hip in the preoperative period, two were on permanent duty restrictions (PDR), one had already been referred to the MEB, and records were not available on three patients who separated from the military prior to review. Thirteen patients underwent concomitant procedures at the time of PAO including arthroscopic femoral osteochondroplasty with labral repair (n = 8), intertrochanteric osteotomy (n = 2), and surgical hip dislocation (n = 1). The average preoperative lateral center edge angle (LCEA) was 14.6º (SD ± 9.3º), anterior center edge angle (ACEA) was 19.1º (± 8.9º), and acetabular index (AI) was 14.6º (±8.0º). The average postoperative LCEA was 28.5º (± 11.5º), ACEA 38.2º (± 12.6º), and AI 3.3º (± 9.6º).

Average follow-up was 3.4 years (range, 2.3 – 5.4y). Twelve patients (57.1%) remained on active duty at the time of final review. Five patients had separated without medical evaluation, two medically separated for non-hip conditions, and two medically separated for hip conditions.

Of the 12 patients remaining on active duty, five (41.6%) had returned to full duty, five were on PDR, and two were on TDR. The average VA disability score related to hip pathology in the patients referred to MEB was 16% (range 0-40%).

DISCUSSION: This is the first study to look at the impact of the PAO in active duty military personnel. At final review, 85.0% of the cohort remained on active duty status (n = 12) or completed their military service (n = 5), when excluding the patient referred to MEB before surgery. Among those patients, seven returned to unrestricted duty and six were relieved of pre-operative temporary duty restrictions following PAO. Pre-operative duty records were unavailable on the final patient. New permanent duty restrictions were imposed on three patients and continued on two patients, which entailed modifications to their semi-annual aerobic fitness testing. Of the six patients referred to MEB, two were deemed fit to remain on active duty with PDR. A final patient was already in the MEB process three months prior to PAO for recurrent instability following a hip arthroscopy.

CONCLUSION: In active duty patients with symptomatic acetabular dysplasia, PAO may provide a surgical option for return to high-level activities and continued military service with little to no functional limitations. Further prospective data collection with the inclusion of patient reported outcomes will be required to better assess the impact of the procedure in this active patient population.

The views expressed are those of the authors/presenters and do not reflect the official views or policy of the Department of Defense or its Components. The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DoDI 3216.02_AFI 40-402.