



## William Beaumont Army Medical Center Annual Research Day

### **Pigmented Villonodular Synovitis of the Knee Following Retrograde Femoral Nailing**

The following abstract was presented at William Beaumont Army Medical Center's Research Day in May 2008.

**Purpose:** Historically, antegrade intramedullary nailing has been considered the standard of care for femoral shaft fractures. Over the last twenty years, the ease of insertion of retrograde nails and its obvious advantages in certain situations such as the patient with concomitant pelvic fractures has led to its increasing adoption. We present the case of a patient with a distal third femur fracture who experienced a complication following a retrograde nail that has not been previously reported in the literature.

**Methods:** A 58 year old man sustained a comminuted right distal third femoral shaft fracture in a motorcycle accident. The patient was treated with a reamed retrograde intramedullary nail with distal and proximal interlocks on the day of injury. The patient tolerated the procedure well, and recovered full function of his lower extremities. Over the subsequent 6 years, the patient noted persistent pain over the distal interlock screws as well as recurrent mild knee effusions. The patient elected to undergo knee arthroscopy and removal of the distal interlock screws. During the arthroscopy, the synovium was noted to have villonodular, proliferative changes in all knee compartments. Pathologic specimens confirmed the diagnosis of diffuse pigmented villonodular synovitis.

**Conclusion:** In this case report, the only traumatic event to the knee was the placement of a retrograde femoral nail. This is the only case reported in the literature of PVNS as a late complication of retrograde femoral nailing

#### **Comments from Author:**

First described in 1852, PVNS is a disorder that was originally postulated to be a neoplastic process. The modern term pigmented villonodular synovitis was introduced in 1942 in a paper by Jaffe in which a series of 20 cases with histology were reviewed. Jaffe et al. concluded that the process was likely inflammatory in nature although they did not identify an inciting agent. Various authors have suggested an association between PVNS and trauma. Most notably, Flandry et al. reported a series of 26 patients with diffuse PVNS of the knee in which 12 patients had a history of prior trauma.

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### **Incidence of Shoulder Dislocation in a Young, Athletic Population**

The following abstract was presented at William Beaumont Army Medical Center's Research Day in May 2008.

**Purpose:** Little is known of the incidence of shoulder instability, despite some evidence that this may be a common injury in young, athletic populations. The goal of this study was to determine the incidence of shoulder dislocation in the military population, as well as the demographic risk factors for injury. The incidence of shoulder dislocation is higher in the US military population than previous reports of the general population.

**Method:** We performed a query of the Defense Medical Epidemiology Database (DMED) of the ICD-9 code for acute shoulder dislocation (831.00) for the years 1998-2006. An overall injury incidence was calculated, in addition to multivariate analysis to determine independent risk factors among the following demographic considerations: gender, race, military service, rank, and age.

**Conclusion:** The overall incidence rate was 1.69 dislocations per 1,000 person-years. Significant demographic risk factors were male gender, white race, service in the Army, junior enlisted rank, and age less than 20 years. The incidence of shoulder instability is considerably higher than previous reports for the general US population.

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Annual Research Day  
(Continued)

**A Descriptive Analysis of Patients Admitted to the Intensive Care Unit of the 10th Combat Support Hospital Deployed to Baghdad, Iraq from October 2005 to October 2006**

The following abstract was presented at William Beaumont Army Medical Center's Research Day in May 2008.

**Purpose:** Although a review of the one month experience of a British ICU deployed in 2003 to Iraq exists, outlining its care of 47 patients; a descriptive study outlining patient characteristics, workload, and outcomes of an ICU during a long-term deployment to Operation Iraqi Freedom is lacking in the medical literature.

**Methods:** Between October 2005 and October 2006, the 10<sup>th</sup> Combat Support Hospital (CSH) deployed with an intensive care unit (ICU) to Ibn Sina Hospital in Baghdad, Iraq. Staff prospectively collected patient admission data from 1 November 2005 to 31 August 2006 in handwritten logbooks. This information included nationality (United States/Iraqi/other), military versus civilian, mechanism of injury or non-trauma admission diagnosis, ICU length of stay (LOS), and outcome. This data was retrospectively reviewed for the purpose of reporting the experience of the 10<sup>th</sup> CSH ICU during its deployment.

**Conclusion:** The 10<sup>th</sup> CSH ICU admitted 875 patients during the study period. This represented 27% of all hospital admissions to (n=3,289). The most common patient category of admission was Iraqi civilian (n=472, 53.9%). Non-coalition (Iraqi

civilian, Iraqi military, non-US contractors, and other non-coalition military) admissions made up 76.9% (n=673) of all admissions. US military (n=165) and US contractors (n=31) made up 22.4% of all ICU admissions. Trauma related admissions were the most common diagnoses (n=730, 83.4%). Other admission diagnostic categories included medical (n=125, 14.3%), and post-operative (n= 5, 0.6%). A total of 15 patients (1.7%) were unable to be categorized based on diagnosis due to missing information. The most common medical diagnosis requiring ICU admission was related to cardiovascular disease (n=51, 40.8%). US military personnel traumatically injured suffered significantly more explosions injuries and burns than their Iraqi military and other non-coalition military counterparts. The ICU LOS was significantly shorter in US military and US contractor patients compared to all other groups, likely a result of expeditious air evacuation to more rearward locations. The ICU all-cause mortality was 5.03% (n=44). The primary mission of a US military ICU deployed in support of combat operations is the care of its injured troops. However, ICU personnel more commonly care for non-US patients during combat medical operations. These patients include pediatric patients as well as admissions for non-trauma illnesses. This mission is accomplished by courageous nurses and physicians faced with unique challenges with an acceptable ICU mortality.

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