INTRODUCTION

Scrotal swellings are among the most prevalent clinical cases encountered in surgical practice. Causes of scrotal swelling may be classified into two main categories; Testicular causes (e.g., testicular tumors, testicular torsion, orchitis and testicular trauma) and extra-testicular causes (e.g., varicocele, epididymitis, hydrocele, spermatocele, epididymal cysts, tubular ectasia of the rete testis and scrotal hernias) ***(Micallef et al., 2000)***.

Ultrasonography is a painless and non invasive method of using high-frequency sound waves to image anatomic structures and provides valuable information. Sonographic images may be produced in any anatomic plane by adjusting the orientation and angulations of the transducer and the position of the patient. Ultrasound (US) signals may be displayed in several ways including gray-scale, color and power-mode Doppler to provide diagnostic information ***(Peter et al., 2002)***.

Ultrasonography has many advantages including availability, flexibility, lack of ionizing radiation, and accurate anatomic and, sometimes, physiologic information obtained without the need for intravascular contrast agents ***(Bolgarskii and Rakhmatullaev, 2002).***

Color Doppler sonography (CDS) is an important adjunct to real-time gray-scale imaging. The Doppler effect is a physiologic phenomenon that demonstrates an apparent shift in frequency of a wave reflecting from a moving object and is proportionate to the speed of that object relative to the observer ***(Peter et al., 2002)***.

Power Doppler sonography, a modification of standard color Doppler ultrasonography, is a newer technique that determines the amplitude of the Doppler frequency shift instead of the mean frequency shift, as in conventional color Doppler imaging. The color sensitivity is improved without compromising image quality and is three to five times more sensitive ***(Peter et al., 2002)***.

Ultrasonography of the scrotum is useful in evaluating various acute and chronic conditions. Scrotal ultrasonography aids in the evaluation of testicular torsion, trauma, testicular tumors, and epididymitis. CDS provides information on blood flow and can diagnose or rule out testicular torsion and document hyperemia associated with epididymitis and or epididymo-orchitis. Scrotal ultrasonography is also useful in the evaluation of varicocele ***(Peter et al., 2002)***.

This technique can determine whether the mass is intra or extra testicular, can be used to distinguish the testicular tumor from the epididymal pathology, and may also facilitate testicular examination in the presence of a hydrocele ***(Kim, 2000)***.