A Complete Solution for Mitral Valve Repair

Conservative management of mitral valve disease has become an accepted option to valve replacement. Advances in surgical technique have made valve repair a more predictable and reproducible procedure. The introduction of the AnnuloFlo™ System gives Sulzer Carbomedics’s surgeon customers the ability to optimally manage their patient’s heart valve disease.

35 YEARS OF EXPERIENCE

The annuloplasty ring concept and early prototypes were first introduced in 1962, which happened to coincide with the first successful prosthetic valve. Nearly six years passed before the first published studies appeared. Ring design philosophies have continued to evolve, and presently there are two, rigid and flexible. The rigid ring philosophy remodels the valve’s annulus and restores the natural relationship between the anteroposterior and transverse diameters of the valve. The flexible ring philosophy allows the normal physiological response (motion) of the valve during the cardiac cycle. All rings can be categorized into six groups based on three criteria: complete or incomplete, rigid or flexible, and fixed size or adjustable. Materials used in the manufacturing process include silicone rubber, polyester fabric, titanium, barium sulfate, Elgiloy® and Ultra High Molecular Weight Polyethylene.

1 Mitral valve exhibiting dilation of the annulus. This prevents the valve from closing completely and allows blood to regurgitate or “backflow”.

2 Mitral valve with an annuloplasty ring in place. This restores the valve’s normal shape and function.

An annuloplasty ring is typically implanted in the heart’s mitral valve in order to recreate and maintain the normal shape of a dilated annulus. A dilated valve annulus allows blood to leak back through the valve after it has closed (Fig. 1). This causes the heart to work harder to pump the required amount of blood through the body. The excess work can weaken the heart, causing it to enlarge and produce symptoms such as chest pain, shortness of breath, dizziness and chronic tiredness. The AnnuloFlo System is designed to correct the abnormality, thus enhancing the patient’s quality of life (Fig. 2). The advantages of heart valve repair versus replacement include preservation of the natural valve as well as reductions in mortality, anticoagulation therapy, thromboembolism and incidence of reoperation.
Just as annuloplasty rings have evolved over the years, so too has the annuloplasty surgical technique. While conservative repair procedures gained preference during the 1960s, prosthetic valve replacement was soon preferred because the various types of annuloplasty failed to achieve predictable and stable results.

THE VALVULOPLASTY CONCEPT

The individual credited with “championing” the conservative management of valve disease is Professor Alain Carpentier of the Hospital Broussais in Paris, France. He introduced the concept of “valvuloplasty” and synthesized repair techniques into a standard that has made valve repair more predictable and reproducible – thus revitalizing the interest in valve repair. The valvuloplasty concept is based on several sound principles that have evolved over many years. First, valve repair outcomes are enhanced when surgical intervention is during the early stages of the disease process. Secondly, the most important step in valve repair is proper analysis of the valve pathology. Careful inspection of the entire valve apparatus must be done: annulus, leaflets, commissures, chordae tendinae and papillary muscles (Fig. 3*). Lesions must be corrected prior to the ring annuloplasty. The valvuloplasty techniques have extended valve repair to approximately 95% of patients with degenerative valvular disease, 70% with rheumatic valvular disease and 75% with ischemic valvular disease.

The AnnuloFlo ring is a rigid, incomplete ring and is available in six sizes. The ring is also Biolite®-coated which inhibits the formation of pannus tissue growth. This means that if the ring has to be removed, there will be less trauma to the valve apparatus. The system also includes a set of instruments that facilitates the surgical procedure (Fig. 4*).

The AnnuloFlo System is Carbomedics’s first product offering in the valve repair market. Future products will include complementary annuloplasty ring devices as well as cardiac patch products utilizing the Sulzer Carbomedics proprietary PhotoFix® tissue fixation process.

INFO DIRECT
Sulzer Carbomedics Inc.
Robert M. Chapman
1300 East Anderson Lane
Austin, TX 78752-1793
USA
Phone +1 (1)512 435-3526
Fax +1 (1)512 435-3350
E-mail bchapman@carbomedics.com