

FAREWELL TO SURGICAL MITRAL COMMISSUROTOMY

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I read with interest the article of Dr. Fawzy et al., from King Faisal Specialist Hospital (KFSH) in this issue of Heart Views.¹ Whenever I read an article written by a person I know, or from an institution I was associated with, my mind drifts and memories creep in for a while. So when I looked at Fawzy's article, my mind drifted to the year 1979, Dr. Nizar Feteih, and Dr. Fawzy in KFSH. Therefore, the reader should not mind if I drift in my editorial discussion away from the topic for a while. I do not like to be too formal and too restricted to the scientific topic. Even though I was a science student and fascinated with biology and science, I lean more towards literature and history in my writing than science.

In 1979, I was in Doha busy struggling to establish a cardiology division when I received a telegram from KFSH asking me to join as visiting cardiologist for one month, while a senior cardiologist from KFSH was traveling with King Khalid. The King was suffering from coronary artery disease. He was flown to the USA for coronary artery bypass graft. Dr. Nizar Feteih, the Managing Director of KFSH and an old colleague of mine from medical school in Colorado, USA, encouraged me to accept the invitation. I also welcomed the opportunity to take a break from my hectic work in Qatar and go to see and benefit from the set-up of cardiology in KFSH. There, I met Dr. Fawzy, who was a senior cardiologist in the hospital then. He was very friendly and very hard working Egyptian cardiologist.

KFSH was well-known then as the most prestigious hospital in the Gulf. It opened in 1975 with 120 beds. I was told that King Faisal used to have an office in the hospital, where he spent some time in the early days, not as a patient but to make sure every thing was in order. The hospital was administered by an expensive American company when I visited it. I was impressed with its layout and modern equipment. Even the apple we ate in the hospital cafeteria was air-delivered especially for KFSH from the USA. Even though its cardiac program was still young then and in its infancy, it was the most advanced in the region. In 1978, one year before I visited the center, cardiac surgery was started

with a team from Baylor College of Medicine, Houston, Texas, USA, on special contract with KFSH. It was the first cardiac surgical center, not only in Saudi Arabia, but in the whole Gulf.

One of the patients I performed cardiac catheterization on in KFSH at that time was a young lady with mitral stenosis (MS). At that time in 1979, no surgeon would operate on MS patient without cardiac catheterization. Fortunately for us, cardiologists, about half a dozen years later, most surgeons accepted to operate based on echocardiography findings. I remember the days of doing right and left heart catheterization, left ventricular angiogram, green dye and Fick cardiac output for evaluating MS. Now, five minutes scanning by echocardiography gives more information about the valve than what we used to get by catheterization of one hour. The concept of using balloon for valvuloplasty was not invented yet at that time. Patients with MS must be referred for surgical valvotomy, which was the only option.

The data collection in KFSH for mitral balloon valvuloplasty (MBV), as stated by Fawzy et al., started in 1989, ten years after my visit. That was only 5 years after the invention of the procedure. The first percutaneous balloon mitral commissurotomy was performed in the Department of Thoracic Surgery, Kochi Municipal Hospital, Kochi, Japan and was described by Inoue et al. in 1984.² History was made with that article stating: "A new balloon catheter was developed which allows mitral commissurotomy without thoracotomy." In that historical article, the procedure had been successful in five of the six patients with mitral stenosis. All the five patients were well with remarkable clinical improvement 2 to 16 months after the procedure.

Two years later, in 1986, the American Journal of Cardiology reported what the author called "Percutaneous transarterial balloon valvuloplasty for mitral valve stenosis". That procedure was performed successfully in 3 patients with moderate MS and concluded "The procedure was easy to perform and caused no complications".³ In

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November 1987 the American National Heart, Lung, and Blood Institute (NHLBI) established the multicenter Balloon Valvuloplasty Registry to assess safety and efficiency of the percutaneous balloon mitral commissurotomy procedure. By October 1989 the registry was completed with 736 patients who underwent percutaneous balloon mitral commissurotomy at 23 registry sites in North America. The authors of that large registry concluded that: *“Percutaneous balloon mitral commissurotomy has a favorable effect on the hemodynamic variables of mitral stenosis, and long-term follow-up data suggest that it is a viable alternative with respect to surgical commissurotomy in selected patients”*.⁴

The NHLBI study had more patients but older and had shorter follow up compared to KFSH study. The immediate results of MBV were similar. Since that time MBV became a standard procedure in many centers around the world except in our center in Doha, Qatar.

In 1992, we invited experts to teach us the procedure in Doha. I did a few with the help of an experienced visitor. The technique consists of advancing a balloon flotation catheter after trans-septal puncture across the interatrial septum and then advancing the balloon across the mitral valve orifice and inflating it. We did not have many MS patients in Qatar. We continued to do sporadic cases when available, about 3-4 cases a year. With such small number of MS available it was hard to justify continuing MBV in Qatar. The above NHLBI study showed that the high volume centers (i.e., those performing > 100 procedures) have the best survival at follow-up.⁴ During one of our departmental meetings I told my colleagues that with so few numbers of MS in Qatar, I did not feel it was ethical to continue performing MBV. All agreed. We reserve the procedure for selected surgically risky patients and to be performed by a cardiologist with the most experience in MBV. Fortunately, we now have such a cardiologist in our staff.

The population of Qatar reached 1.5 million this year, mostly expatriates with the Qataris no more than 300,000. Beside the small number of our population, the number of patients with MS is also declining in our community in both Qataris and non-Qataris.

In our on-going cardiology registry, I compared the number of patients who had history of MS on their admission record during the earlier five years (1992-1996) to the last five years (2003-2007).

In the last five-year group, the number of patients admitted to cardiology wards with a history of MS was 47% less as compared to the earlier five-year group as shown in the table below:

Years	Total number of patients	History of MS	%
1992-1996	9532	170	1.783466
2003-2007	12566	106	0.84354

We know that the predominant cause of MS is rheumatic fever (RF). WHO states that: *“The major determinants of rheumatic fever and rheumatic heart disease are poverty, malnutrition, overcrowding, poor housing and a shortage of health-care resources”*.⁵

We rarely see RF in Qatar nowadays. The socioeconomic, health, sanitation and hygiene improvement in our country since the discovery of oil led to the decrease in the incidence of RF in Qatar. I assume that the same principle would apply to the whole Gulf region.

I was lucky that I did not get RF. When I was a child I had recurrent tonsillitis. Antibiotics were not available to us then. Umm-Mohammad, an old traditional lady-healer used to treat me when I was febrile and very sick with tonsillitis. She used to restrain me with her assistants. Then she would put a small stick between my teeth to prevent me from biting before she inserted her finger in my throat. She did not wash her hands but moistened her middle finger and dipped it in a powder extracted from pomegranate peels. Then, she would press hard with her finger on my inflamed tonsils. If the tonsils had pus, she succeeded in rupturing them. On some occasions, I spit pus with blood after such primitive incision and drainage. Of course Umm-Mohammed, an illiterate old lady, never heard of antibiotics or RF.

I have no doubt that RF existed from antiquity, but it was not recognized until the 19th century. Before the introduction of auscultation by Rene Laennec in 1818, rheumatic heart disease was recognized from abnormalities of the pulse, respiration, and palpation of the chest in the presence of fever and joint pains. One hundred years later, the infectious etiology of RF, hemolytic streptococcus, was identified.

The first surgical mitral commissurotomy for MS was performed in early 1940 by Dwight E. Harken in Boston.⁶ Two decades later, the Starr-Edward artificial valve was used to replace the valve. Starr was a cardiac surgeon and

Edwards was a chest physician, both at the University of Oregon in Portland then. When I went to Portland in 1974 for residency and fellowship training, Dr. Starr was the chief of the cardiac surgery program there. Because Dr. Starr was a pioneer in valve replacement, I saw a lot of pre and post valve replacement patients during my training in Portland. I did not however remember seeing patients with acute RF during my training there. They were probably admitted to the pediatric service in private hospitals in Portland.

Nowadays, the widespread prescriptions of antibiotics by physicians in the Gulf for viral upper respiratory tract infections and the availability of over the counter antibiotics may have been a factor in reducing RF also. Unfortunately in his paper, Dr. Fawzy did not provide us with the number of cases of MS over the years of the study, to see if they were declining or not.

Several studies in Europe and North America during the early 20th century showed a decline of rheumatic fever. There is also evidence that the recurrence of RF is steadily declining unrelated to treatment.⁶

At the present time we still need to refer some patients for surgical commissurotomy because they can not be done with MBV. With future technical improvement of MBV, the procedure may completely replace surgical commissurotomy in all regions of the world. Randomized studies of severe MS have shown that the clinical results of MBV and open surgical commissurotomy are similar. It also showed that after 3 years, the mitral valve area was greater in the balloon

treated compared to surgically treated group.⁷ We may not be far from the day when we say "Farewell to surgical commissurotomy." With technical and scientific advances in prevention, diagnosis, and treatment, it is possible that MS due to RF may disappear from the world.?

References:

1. Mohammed Eid Fawzy et al. 18 years Follow up results of Mitral Valvuloplasty in 531 Consecutive Patients and Predictors of Long-Term Outcome. *Heart Views* 2007;8(4):130-141.
2. K. Inoue, T. Owaki, T. Nakamura, F. Kitamura and N. Miyamoto, Clinical applications of transvenous mitral commissurotomy by a new balloon catheter. *Thorac Cardiovasc Surg* 1984;87:394-402.
3. Babic UU, Pejic P, Djuriscic Z, Vucinic M, Grujicic SM, Percutaneous transarterial balloon valvuloplasty for mitral valve stenosis. *Am J Cardiol*, 1986; 57(13):1101-110x4.
4. Multicenter experience with balloon mitral commissurotomy: the NHLBI balloon valvuloplasty registry report on immediate and 30 day follow-up results. *Circulation* 1992;85:448-461.
5. Rheumatic Fever and Rheumatic Heart Disease – Report of WHO Expert Consultation. Geneva 29 Oct- 1 Nov 2001.
6. Kenneth Kiple: *The Cambridge world history of human disease*. Cambridge Univ. Press, 1993:970-977.
7. Reyes, V. P., Raju, B. S., Wynne, J., et al, Percutaneous balloon valvuloplasty compared with open surgical commissurotomy for mitral stenosis. *N. Engl. J. Med* 1994;331:961.

Staatliches Museum für Volkerkunde, Munich, 1946.



Belt and sheath of a curved dagger, gilt and embroidered.