CLOSED MITRAL VALVULOTOMY IN A JEHOVAH'S WITNESS DURING PREGNANCY

A case report

A. MILANO (*), U. BORTOLOTTI (*),
G. PANIZZON (*), M. MEGA (**),
F. GIORGINO (**), V. GALLUCCI (*)

(*) Department of Cardiovascular Surgery, University of Padua

(**) Obstetrics and Gynecological Department, University of Padua

SUMMARY

The case of a young Jehovah's Witness, who underwent transventricular mitral valvulotomy in the 16th week of her first pregnancy, is reported.

The successful outcome of this patient further confirms the feasibility of safe surgical procedures either in Jehovah's Witnesses or in pregnant subjects.

Advances in surgical techniques as well as in anaesthesiological management and post-operative care currently allow particular subjects, such as the Jehovah's Witness and pregnant patients, to undergo surgical procedures safely [1-6].

We report a case of a successful closed mitral valvulotomy performed in a Jehovah's Witness during pregnancy.

CASE REPORT

A 26 years-old female, belonging to the Jehovah's Witness faith and with a past history of rheumatic fever, began complaining of easy fatigability and palpitation 10 years prior to admission. One year ago her condition deteriorated and she entered, on November 1979, an out-of-town hospital because of dyspnea on effort and exercise intolerance of recent onset.

On admission she was in the 16th week of her first pregnancy. Blood pressure was 100/75 mmHg on both arms and the pulse rate 84 per minute. The 1st heart sound was increased at the apex, while the 2nd was of normal intensity. A mitral opening snap and a diastolic rumble were audible at the apex; moreover both a 3/6 systolic murmur and a diastolic regurgitant murmur were noted on the aortic area.

Routine laboratory findings revealed only a mild hypochromic anemia (Ht = 35%; Hb = 11 gr/100 ml); iron therapy, however, was not administered.

The development of the fetal-placental unit was regular for the gestational age. Subsequently also the biochemical (plasmatic E_3, hPL, SP-I) and biophisic (ecographic and cardiotocographic controls) parameters of the fetal-placental development were always in normal range.

The ECG showed sinus rythm and signs of left atrial enlargement and left ventricular hypertrophy. On the chest x-ray the cardiac shadow was moderately

enlarged with signs of pulmonary venous congestion.

The patient underwent subsequently cardiac catheterization which confirmed the clinical diagnosis of severe mitral stenosis and aortic stenosis and insufficiency. Particularly it showed increased pulmonary wedge pressures (30-12-18 mmHg); increased left ventricular pressure (170/0-10 mmHg), a diastolic transmitral gradient of 14 mmHg, and a transaortic gradient of 50 mmHg. Angiocardiography revealed a rigid but not calcified mitral valve, a mild aortic incompetence and a still preserved left ventricular contractility.

The patient was then referred to our Department for surgical treatment, since it was felt that without it pregnancy would not have been carried out successfully. The aortic disease was not considered haemodynamically significant and therefore, considering also the young age of the patient, only a closed mitral valvulotomy was planned.

Surgery was performed on March 21st, 1980. Anaesthesia was induced with pancuronium bromide and tiopentone; thereafter the patient was intubated and mechanically ventilated. Anaesthesia was maintained with fentanyl (repeated doses of 0.25 mg, to a total of 0.75 mg). PaO_2 was maintained over 150 mmHg and PCO_2 around 30 mmHg during the entire procedure.

The heart was approached through a left anterolateral thoracotomy in the 4th intercostal space. The mitral valve was explored through a purse string suture on the left atrium and it was considered severely stenotic, not allowing the tip of one finger. After a second purse string suture had been placed, a Tubbs mechanical dilator was inserted into the left ventricle through the apex. The dilator was opened for 3 cm; the mitral valve was then considered satisfactorily enlarged and no regurgitation was noted. The entire procedure lasted 1 hour and 15 minutes.

The patient was then transferred in the intensive care unit where she required mechanical ventilation for 4 hours; morphine was administered for sedation. No abnormal uterine contractions nor vaginal bleeding and no alterations of the fetal cardiac rate were noted. Total blood loss from the chest tube was 700 cc; no blood or blood derivatives were employed during the operation and in the post-operative period.

On the 1st post-operative day the patient was discharged to the ward were she enjoyed an uneventful recovery. At discharge, on the 13th post-operative day, her Ht was 32% and Hb 10 gr/100 ml; the patient was maintained on a regimen of digoxin, diuretics and progesterone. In the 39th week of gestational age the patient delivered spontaneously a healthy male baby (g 2780, Apgar score at $1' = 8$ and at $5' = 10$) and at the present time he is doing well.

COMMENT

Due to the development of a technique which utilizes a bloodless prime for total cardiopulmonary bypass, heart surgery may be currently accomplished with minimal risks in patients belonging to the Jehovah's Witness faith, who refuse transfusions of blood or its derivatives [1-3, 6].

On the other hand, improvement of surgical procedures as well as of post-operative management together with the employment of drugs which do not interfere with the organogenesis, presently allow pregnant patients to safely undergo repair of cardiac anomalies during pregnancy whenever necessary [4, 5]. In fact this case confirms the opinion of other Authors [7, 8] which affirm that if it's admitted the necessity of an early operation, it can be done in every phase of the pregnancy; practically there isn't an ideal

period and there aren't evidences that an operation in the early pregnancy causes damages on the offspring.

Furthermore the present case is unique in that our patient was a Jehovah's Witness in the 16th week of her 1st pregnancy at time of operation; this association, to the best of our knowledge, has not been previously reported.

The closed transventricular mitral valvulotomy was planned considering the young age of the patient and the absence of calcific deposits of her mitral valve. However, should a prosthetic valve replacement have been required, both her being a Jehovah's Witness and pregnant would not create major problems, and not would have precluded surgical repair, as outlined by our previous experience ([5, 6]).

BIBLIOGRAPHY

1) Cooley D. A., Beall A. C. Jr., Grodin P.: *Surgery, 52*, 713, 1962.
2) Zaorski J. R., Hallman G. L., Cooley D. A.: *Am. J. Cardiol., 29*, 186, 1972.
3) Sandiford F. M., Chiariello L., Hallman G. L., Cooley D. A.: *J. Thorac. Cardiovasc. Surg., 68*, 1, 1974.
4) Estafanous F. G., Buckley S.: *Clev. Clin. Quart., 43*, 713, 1976.
5) Casarotto D., Bortolotti U., Russo R., Betti D., Schivazappa L., Thiene G.: *Chest, 75*, 390, 1979
6) Bortolotti U., De Mozzi P., Betti D., Mazzucco A., Frugoni C., Valfrè C., Gallucci V.: *Giorn. It. Cardiol., 9*, 996, 1979.
7) Snaith L., Szekely P.: "Cardiovascular surgery in relation to pregnancy". In: "Advances in Obstetrics and Gynecology" (Ed.) Marcus S.L. and Marcus C. C., pp. 220-231, Baltimore, Williams and Wilkins (1967).
8) Szekely P., Snaith L.: "Hearth and pregnancy", Edinburgh and London, Churchill Livingstone, pp. 11-174 (1974).