A new instrument for closed mitral commissurotomy: 10 years' experience

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An instrument for the performance of closed mitral commissurotomy is described. More than 300 operations for mitral stenosis have been carried out in a period of 10 years.

We are presenting an instrument for the performance of closed mitral commissurotomy. Ten years' experience includes some 300 operations for mitral stenosis effected with this dilator. The original technique of Narbona Arnau was published in August 1957. Since then this method has been used routinely in the surgical treatment of mitral stenosis. The instrument is simply a metal strip moulded to the dorsum of the index finger which, with its palmar prolongation, makes an arc which fits into the palm of the hand and is gripped by the other fingers (Figs 1 and 2).

The approach used is a left posterolateral thoracotomy through the fourth intercostal space; this high approach gives good access to the left auricular appendage. The pericardium is incised behind the phrenic nerve and a purse-string suture is inserted into the appendage. The index finger is first introduced to assess the valve and to start the commissurotomy. Following this the finger is reintroduced with the dilator, a simple manoeuvre, as the whole diameter has only increased by some millimetres, and the metal surface slides in easily. The hand, finger, and dilator

FIG. 1. Instrument for mitral valvotomy applied to the dorsum of the index finger in the 'closed position' as it is inserted into the atrium.

FIG. 2. Index finger is flexed, thereby separating the fused leaflet of the mitral valve. Counter pressure is provided by the instrument itself.

are moved as a single unit so that the finger does not lose contact with its metallic mould. The handle of the dilator guides the directions in which the finger is moved and the curve of the 'lever' is such that the finger naturally passes towards the mitral valve orifice. On flexing the index finger one can feel the resistance of the fused lateral commissure; the dilator presses against the opposite medial commissure. Pressure is followed by separation of the valve leaflets and often a characteristic tearing noise is heard. The finger has sufficient freedom to release the subvalvular chordal and papillary muscular fusion, and it can achieve further splitting of the posterolateral commissure.

Assessment of the effectiveness of the valvotomy can easily be made by withdrawing the finger and the dilator a few centimetres. If an adequate commissurotomy has not been obtained the dilatation may be repeated.

Among the most important advantages of this technique are: (1) A gradual dilatation may be performed, guided by continuous assessment of the degree of splitting obtained. (2) The postero-

lateral commissure may be separated, preferentially by rotating the finger. The subvalvular fusion may be corrected without the necessity for withdrawing the instrument. (3) Ventriculotomy, which is essential in transventricular valvotomy, is avoided. The left hand remains free throughout.

The effectiveness of commissurotomies obtained by this method may be summarized as follows: both commissures fully separated in 39% of cases, the anterolateral commissure in 50% and the posterolateral in 11%. The increase in diameter of the mitral orifice averaged 2.5 to 3.5 cm.

The clinical results reported in the latest series published (Narbona Arnau, 1966) may be classi-

fied as follows: 75% of patients had grade I exercise tolerance, 19% grade II, 4% grade III, and 2% grade IV. Only some 6% may be considered as a therapeutic failure. The mortality rate was 2.1%.

Up to the present we have carried out operations in more than 300 patients. Some 50 cases have been followed for 10 years.

REFERENCES

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