

SURGICAL TREATMENT SUBAORTIC STENOSIS AFTER RADICAL CORRECTION OF ATRIOVENTRICULAR COMMUNICATION

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After correction of atrioventricular communication in 13 cases operated patients have developed left ventricular outflow tract obstruction. By type of stenosis patients were divided into 2 groups: discrete subaortic stenosis - I group (n = 11), tunnel type of stenosis - II group (n = 2). There were no lethal cases. The immediate and late results in all patients of I group except one were good. In the second group, the immediate results were good, but in the late period was observed progression of restenosis. Resection of fibrosis and myoectomy in discrete subaortic stenosis ensure optimal results, but has a low efficiency in the tunnel form of stenosis.

Key words: *congenital heart disease, subaortic stenosis, atrioventricular communication.*

Hemodynamically significant obstruction outflow tract of the left ventricle (LVOTO) occurs in 3-7% of patients operated with cases of atrioventricular communication (AVSD) and require complex surgical reinterventions [3, 5, 7].

Effective surgical tactic to such patients is not completely defined. This is confirmed by the high frequency of reoperations caused by repeated re-stenosis after "radical" correction [4, 6, 7]. It is important to accumulate and analyze data about this subject and search optimal solution for the existing problems.

Purpose of our work is to analyze experience of surgical treatment of patients who was operated with cases of AVSD and developed hemodynamically significant LVOTO in the late period.

Materials and methods. During the period from 2004 to 2013 year we have operated 355 patients with different forms of AVSD, 13 (3.6%) of which in the long term have developed hemodynamically significant LVOTO. Average age of the patients was 99 ± 127 months (from 22 to 504 months), the average weight - 26 ± 18 kg (from 7,5 to 74 kg).

The average interval between radical correction and reoperation was 59 ± 89 months (from 7 to 395 months).

Primary surgery in the studied group of patients included correction of partial AVSD in 8 (62%) cases, complete AVSD in 1 (7,6%) patient, complete AVSD with double outlet right ventricle in 1 (7,6%) patient, complete AVSD with previous repaired coarctation of the aorta in 2 (15,2%) cases, complete AVSD with previous pulmonary artery banding in 1 (7,6%) patient.

Comorbidities occurred in 11 (85%) of cases. Insufficiency of the mitral valve (MV) of varying degree was detected in 8 (62%) patients. In 2 (15.2%) cases were found trivial and moderate aortic insufficiency. Moderate insufficiency of tricuspid valve and the pulmonary valve is detected in 1 (7.6%) patient.

Based on the type of LVOTO, all patients were divided into 2 groups.

Patients with discrete subaortic stenosis made first group - 11 (85%) patients and the second group included 2 (15%) patients with tunnel type LVOTO.

The average preoperative pressure gradient (Δr) by Echo-kg was 87 ± 26 mmHg (from 40 to 125 mmHg).

Surgical tactics depended on the type of LVOTO and comorbidity.

In first group in 2 (19 %) cases was performed resection of the membrane. Removal of fibrosis and additional myoectomy was performed in 3 (27%) patients. Removal of membrane, myoectomy and suturing splitting of anterior leaf of MV in 3 (27%) patients. Resection of the membrane and myoectomy combined with mobilization of fibrous triangles by Yacoub [9] performed in 1 (9%) patient. In 1

(9 %) case were performed resection membrane, myoectomy, mobilization of fibrous triangles, suturing splitting of anterior leaf of MV and plastic tricuspid and pulmonary valves. 1 (9%) case of underwent resection of membrane, myoectomy and plastic aortic valve in Trasleru.

All patients of Group II was performed with resection of fibro-muscular tissue of tunnel, myoectomy and MV plastic (suturing splitting of front leaf).

The efficiency of removal of LVOTO was evaluated by echo-CG and oriented on magnitude of pressure gradient on left ventricular outflow tract at moment of discharge from the hospital: 20 mmHg – good result, 21-40 mmHg – satisfactory result and 41-90 mmHg– poor result [1].

Results. There were no lethal cases in studied group

Among the patients of I group we were able to achieve good results in 10 (91%) cases, averaged postoperative Δp 18 mm Hg. In 1 (9%) patient who received resection of the membrane without myoectomy we found satisfactory result (postoperative Δp 34 mm Hg).

The immediate results in all cases the II group were good - average Δp 16 mm Hg.

Long-term results of surgical treatment are collected in 10 (77%) patients and amounted to an average of 26 ± 23 months.

Among the first group of patients (85%) the average time of observation was 28 months. Average time of observation in second group of patients (15%) was 17 months.

At the time of inspection, regardless of the type of surgery, in 6 (55%) patients of first group Δp remained in the range of 15-20 mm Hg. In 1 (9%) patient with high residual Δp at discharge (34 mm Hg) was noted increase Δp to 66 mm Hg and was regarded as an indication to reoperation.

In the late period in all cases of second group we registered a substantial increase Δp an average of 15 to 30 mm Hg. This result shows the progression of restenosis and high probability for a re-intervention in the remote period for this group of patients.

Conclusions

1. Features of the structure of the heart in patients with AVSD promote anatomical narrowing of left ventricular outflow tract and turbulent blood flow, which set the stage for the emergence of subaortic stenosis.
2. Aggressive resection and myoectomy in patients with membrane type LVOTO provides good results in the early postoperative period. High residual Δp in the early postoperative period is a risk factor for restenosis.
3. For patients with tunnel form LVOTO resection of fibrosis and myomectomy should be considered as palliative intervention because it has low efficiency in late period. The development and introduction of new methods as well as studying and optimization of existing (Konno operation, etc.) is very important to help effectively and radically solve the existing problem.

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ХІРУРГІЧНЕ ЛІКУВАННЯ СУБАОРТАЛЬНОГО СТЕНОЗУ ПІСЛЯ РАДИКАЛЬНОЇ КОРЕКЦІЇ АТРІОВЕНТРИКУЛЯРНОГО СЕПТАЛЬНОГО ДЕФЕКТУ

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Нами було прооперовано 13 пацієнтів, у яких після корекції атріовентрикулярної комунікації виникла обструкція вивідного тракту лівого шлуночка. За видом стенозу хворі були розподілені на дві групи: дискретний субаортальний стеноз – I група (n=11), тунельний стеноз – II група (n=2). Летальних випадків не було. Безпосередні і віддалені результати у всіх пацієнтів I групи, крім одного, були добрими. У II групі безпосередні результати були добрі, а у віддаленому періоді спостерігалось прогресування рестенозу.

Резекція фіброзу з міоектомією при дискретному субаортальному стенозі забезпечує оптимальний результат, а при тунельному стенозі має низьку ефективність.

***Ключові слова:** вроджені вади серця, субаортальний стеноз, атріовентрикулярна комунікація.*

ХИРУРГИЧЕСКОЕ ЛЕЧЕНИЕ СУБАОРТАЛЬНОГО СТЕНОЗА ПОСЛЕ РАДИКАЛЬНОЙ КОРРЕКЦИИ АТРИОВЕНТРИКУЛЯРНОГО СЕПТАЛЬНОГО ДЕФЕКТА

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Нами было прооперировано 13 пациентов, у которых после коррекции атриовентрикулярной коммуникации возникла обструкция выводного тракта левого желудочка. По типу стеноза больные были разделены на две группы: дискретный субаортальный стеноз – I группа (n=11), туннельный тип стеноза – II группа (n=2). Летальных исходов не было. Непосредственные и отдаленные результаты у всех пациентов I группы, кроме одного, были хорошими. В II группе непосредственные результаты были хорошие, а в отдаленном периоде наблюдалось прогрессирование рестеноза. Резекция фиброза с миоектомией при дискретном субаортальном стенозе обеспечивает оптимальный результат, а при туннельной форме стеноза имеет низкую эффективность.

***Ключевые слова:** врожденные пороки сердца, субаортальный стеноз, атриовентрикулярная коммуникация.*