

SURGICAL TREATMENT FOR CONSTRICTIVE PERICARDITIS

SHAHKAR AHMAD SHAH, AMER BILAL AND ZAHOOR AHMAD

*Department of Cardiothoracic Surgery,
Postgraduate Medical Institute,
Lady Reading Hospital, Peshawar.*

SUMMARY

Chronic constrictive pericarditis is a chronic inflammatory process that involves both fibrous and serous layers of the pericardium and leads to pericardial thickening and compression of the ventricles. The resultant impairment in diastolic filling reduces cardiac function. Pericardiectomy remains the treatment of choice. A review of 52 cases at department of Cardio-thoracic surgery, Lady Reading Hospital is presented. There was a mortality of 7.7% and a morbidity of 28%. 51 of the 52 cases were tuberculous. In followup, all surviving patients reverted to NYHA-I within three months of surgery. The surgical excision of pericardium remains the only available curative treatment for constrictive pericarditis.

INTRODUCTION

The first formal account of chronic constrictive pericarditis was reported by Lower in 1869.¹ In 1896, 3 patients with chronic constrictive pericarditis were described by Pick.² Well in 1895³ and Delorme in 1889⁴ suggested that pericardiectomy be used as treatment for this condition. Schmeiden and Fischer in 1926⁵ reported a series of successful cases as did Churchill in 1929⁶ and Beck in 1931.⁷ By 1941 Blalock and Burwell⁸ were able to report surgical treatment of 28 patients. Since then pericardiectomy has evolved as the only curative treatment available. A review has been done of the pericardiectomies carried out by the cardiothoracic team at Lady Reading Hospital to (i) audit the results, (ii) identify etiology, (iii) draw conclusions/recommendations based on local results.

MATERIAL AND METHODS

Between January 1990 and November 1993 a total of 52 pericardiectomies were done by cardiothoracic unit at Lady Reading Hospital. Male to female ratio was 28 : 24

with an age range of 12-65 years and a mean age of 38 years. 41 patients (80%) were Afghan refugees while 11(20%) were locals. 53 were NYHA stage IV while 30% were NYHA III (Table I)

All patients had routine preoperative workup along with echocardiography and cardiac catheterization to establish the extent of constriction.

Median sternotomy was used as a standard approach in all cases. All patients had pericardium excised anterolaterally and from diaphragmatic surface upto both phrenic nerves. 48 patients had varying amount of pleural effusions sucked out at surgery. All patients needed peri-operative inotropic support of Dobutamine. 12 patients with postoperative low urinary output needed renal dose of Dopamine as well.

RESULTS

All patients presented with exertional dyspnea. Cough and ascites were present in 50%. On clinical examination all patients had evidence of elevated venous pressure

TABLE - I
PREOPERATIVE STAGING

STAGE	NUMBER	%
NYHA IV	28	53.8
NYHA III	20	30.6
NYHA II	04	01
NYHA I	NIL	NIL

and hepatomegaly. Pleural effusion was presents in 36/52 cases. Surprisingly ankle oedema was only present in 5 cases (Table II, III). 5 out of 52 patients had developed severe constriction within 2 months of starting anti-tuberculous treatment for large tuberculous pericardial effusions. This study showed a mortality of 7.7% i.e. 4 deaths. All the deaths were in stage III/IV patients within the first 8 days, and predominantly because of low cardiac output (Table IV). There was no long term morbidity, but most patients needed inotropic support (Table V). All patients were followed up for one year and all reverted to NYHA-I within 3 months after surgery.

DISCUSSION

Chronic constrictive pericarditis is a grossly disabling progressive and debilitating disease. The interval between an aetiologic occurrence and the onset of clinical evidence of constriction varies between a few months and many years.¹ In our study 51/52 cases were tuberculous and the interval between aetiologic occurrence and onset of constriction was in months rather than years.

TABLE - II
PRESENTING SYMPTOMS

Exertional dyspnoea	52/52
Dyspnoea at rest	28/52
Swelling of feet	05/52
Abdominal distension	25/52
Cough	32/52

Somerville has estimated that once the signs and symptoms of chronic constrictive pericarditis develop, only a semi-invalid life can be led for upto 5 years.¹⁰ When the clinical syndrome include ascites, progression is more rapid, particularly in children.¹¹

Pericardiectomy via median sternotomy remains the only curative treatment available. The hospital Mortality after pericardiectomy for chronic constrictive pericarditis does not approach zero even in the current era. In an earlier era the hospital mortality was 10-15%.^{12,13} In more recent eras hospital mortality has been about 5%.^{14,15,16} Thus our hospital mortality of 7.7% does not compare unfavorably with international figures. 3/4 deaths in our study were due to low cardiac output. This is in keeping with literature which reports 75% of deaths in hospital are due to cardiac failure.¹³ Postop haemorrhage and respiratory failure are the other modes of early death.

All surviving patients reverted to NYHA I status within 3 months after operation. This compares favorably with the literature which states that 5% patients continue to have chronic congestive cardiac failure after recovery from a satisfactory Pericardiectomy.¹⁴

51/52 cases were tuberculous and 41/52 cases were Afghan refugees. This is in keeping with the high prevalence of tuberculosis in this population and the delay in getting proper medical attention which afflicts this unfortunate populace.

TABLE - III
SIGN

Peripheral Oedema	2/52
Raised JVP	52/52
Hepatomegaly	52/52
Ascites	32/52
Pleural effusion	36/52

TABLE – IV
MORTALITY

STAGING	AGE	SEX	TIME OF DEATH AFTER SURGERY	CAUSE OF DEATH
NYHA STAGE IV	45	M	2 HOURS	LOW CARDIAC OUTPUT
NYHA STAGE III	65	F	8 DAYS	—DO—
NYHA STAGE IV	13	F	6 DAYS	—DO—
NYHA STAGE IV	31	M	6 DAYS	RESP. FAILURE.

All patients needed perioperative inotropic support and ICU care. All patients with low cardiac output responded well to inotropes, rather than intra-venous fluids which would only further strain the thin walled right ventricle.

CONCLUSION

Chronic constrictive pericarditis is not an uncommon problem presented to the cardiothoracic unit. Tuberculosis is the most common cause in our part of the world. Untreated it has a very high morbidity and a fairly high mortality. Pericardiectomy remains the only curative treatment available. Pericardiectomy in proper hands, in a well equipped unit has an acceptable mortality of 7.7% for an otherwise debilitating and ultimately fatal disease. Low cardiac output, commonly seen after this

TABLE – V
MORBIDITY

Low cardiac output	28(53.8%)
Haemorrhage	6
Transient AF	4

operation should be treated with inotropes rather than I.V. fluids, to protect usually thin walled right ventricle.

REFERENCES

- Lower R. Trachs de Cord item de motu, London J Allestry 1669; 104.
- Pich F., Ceitschrift for Klisische. Mediz'm 1896; 29: 385.
- Weille. Traite clinique des maladies du coeur chez KS enfants. Paris 1895.
- Delome E. Sur un traitement chirurgical dela symphyse cardiopericardique. Bull Men Soc Chir Peris 1889; 24: 918.
- Schmeden V, Erqebnisse des Chir Othopadic. 1926; 19: 98.
- Churchill ED. Decortication of the heart for adhesive pericarditis Arch Surg 1929; 19: 1457.
- Beek CS: The Surgical treatment of pericardial scar, JAMA 1931; 97: 824.
- Blalock A, Burwell CS. Chronic Pericardial disease Surg Genecol Obstet. 1941; 73: 433.
- Pericardial Disease- Cardiac Surgery- Brian G, Barret Boyes. 1993.
- Somerillew. Constrictive pericarditis and surgery correlation 1968; 37.
- Stadler H Stinger. J Paediatric. 1941; 18: 84.
- Cooley JC. Surgical aspects of chronic constrictive pericarditis. Anu Surg 1958; 147: 488.
- N: Y Von Seqessor, Futility of pericardiectomy for post irradiation constrictive pericarditis. Annuls Thoracic Surg 1990; 49: 445.
- De Valeria PA. Current indications, rishs and outcome after pericardectomy Anu Thoracic Surgery 1991; 52: 219.
- Scifert FC. Surgical treatment of constrictive pericarditis circulation 1985. 72.
- Viqueswaran WT. Pericardiectomy J. R Coll Surg. edin 1985; 30: 150.