

Carcinoid Heart Disease

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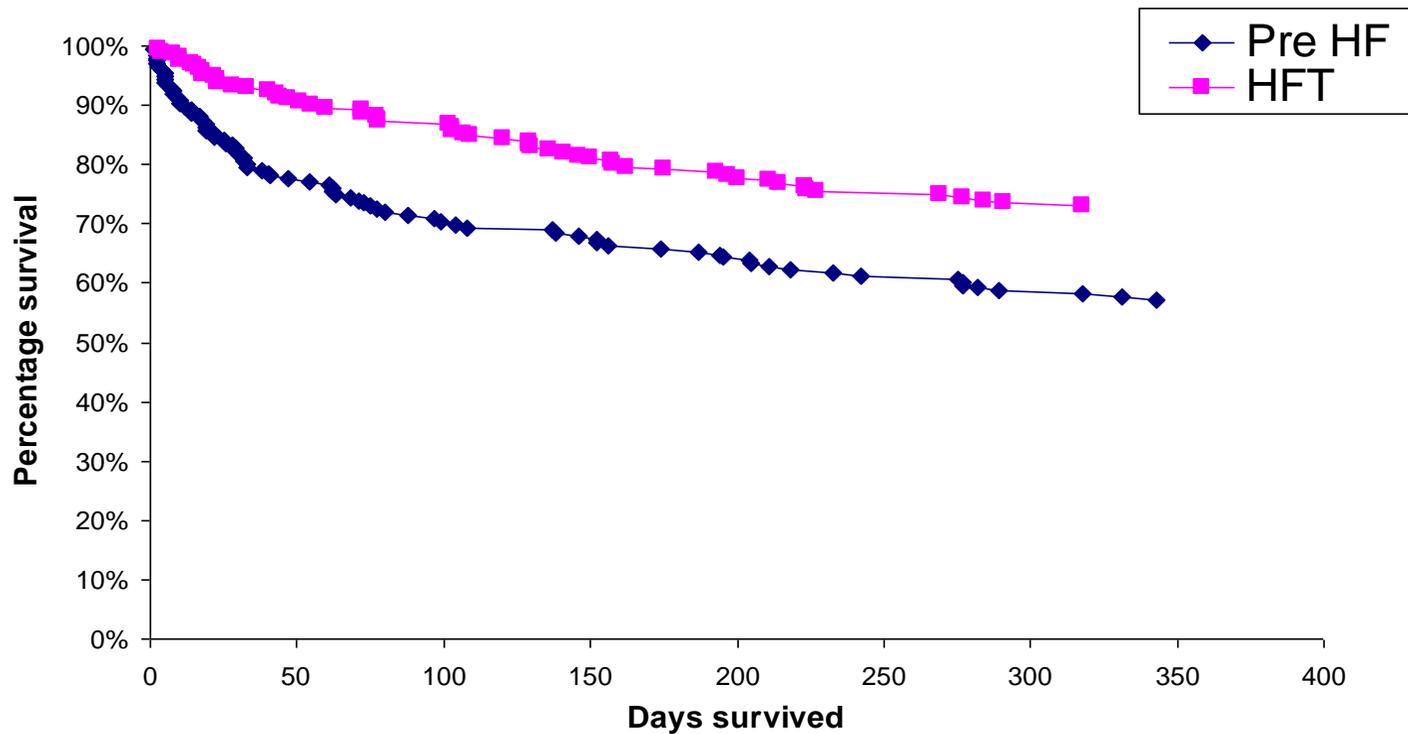
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Talk Overview

- Introduction
- Specialist care improves outcomes
- Carcinoid heart disease
- Common cardiac investigations
- Surgical Management

Survival 1 year post admission



84/196 dead pre-HFT v 57/211 HFT, $p < 0.01$

Baseline Characteristics

	Pre-HFT	HFT
Gender	36% female	40% female
IHD	51%	53%
Diabetes	26%	28%
Heart Rate	87 ± 21 bpm	89 ± 26 bpm
Systolic BP	126 ± 28 mmHg	126 ± 25 mmHg
QRS duration	117 ± 37 ms	116 ± 44 ms
Mod/ severe LVD	63%	70%
Preserved LV	17%	15%
Sodium	135 ± 6 mmol/l	135 ± 6 mmol/l
eGFR	48 ± 23	51 ± 22
Hb	122 ± 22 g/l	124 ± 23

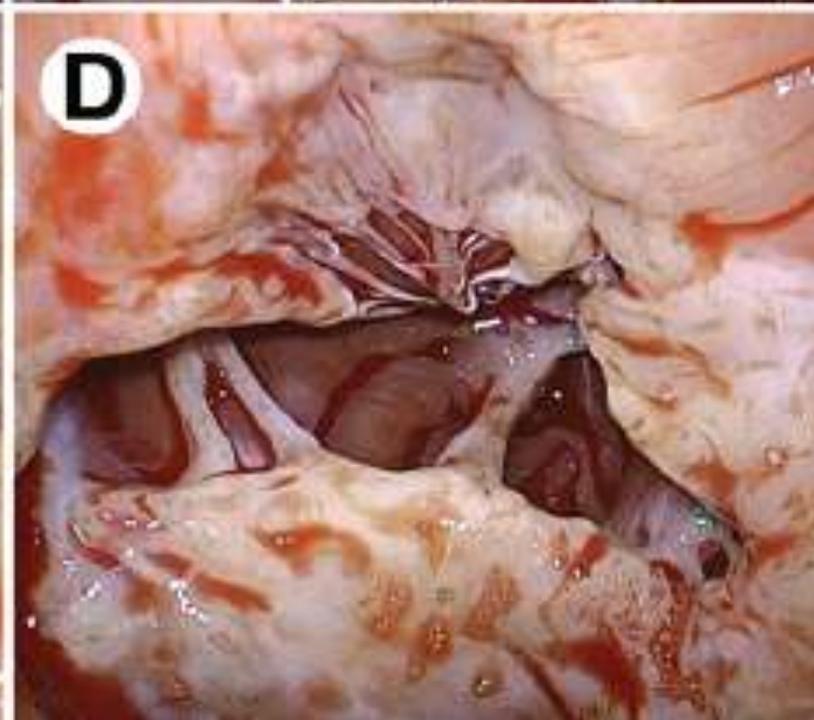
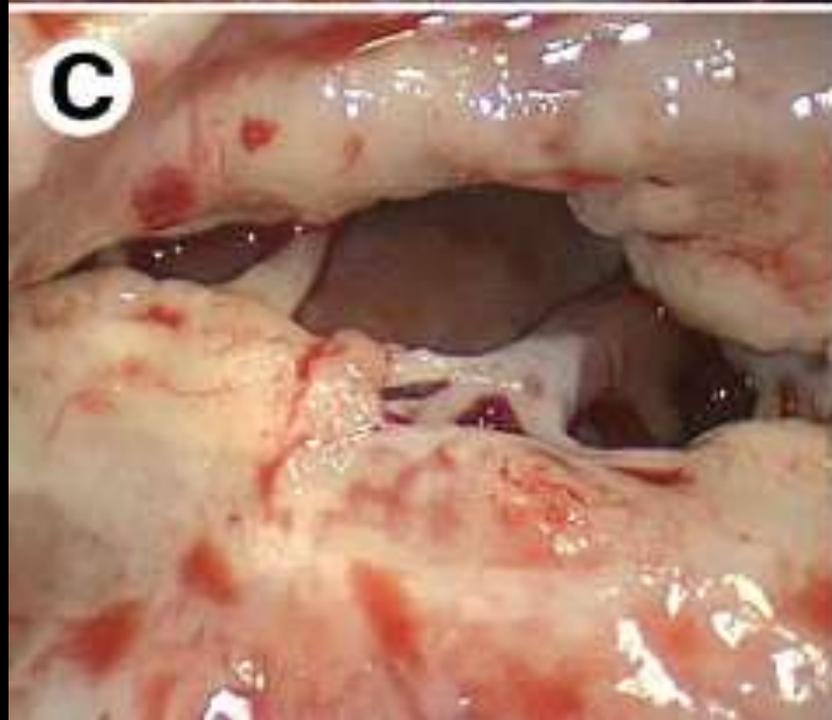
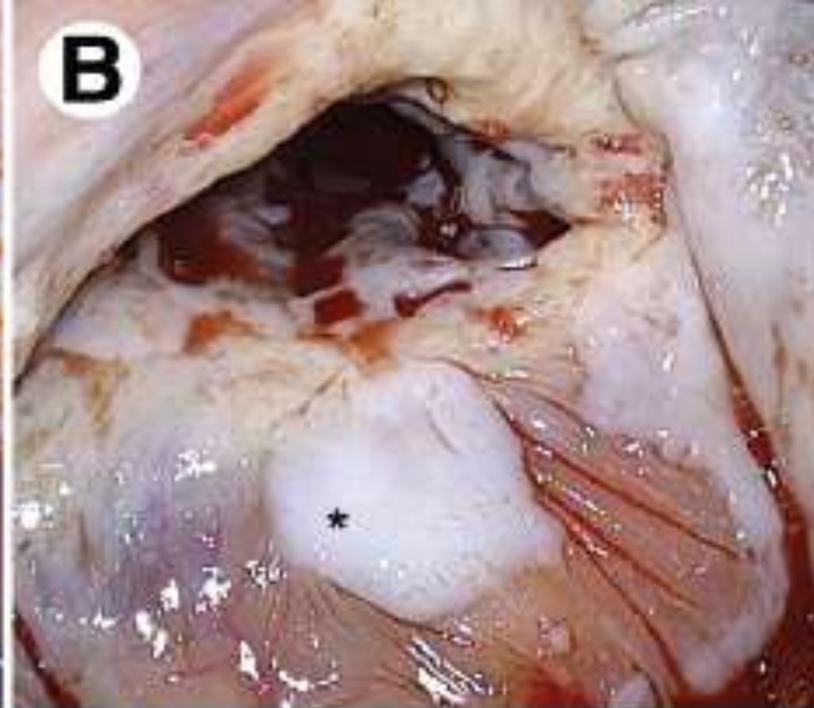
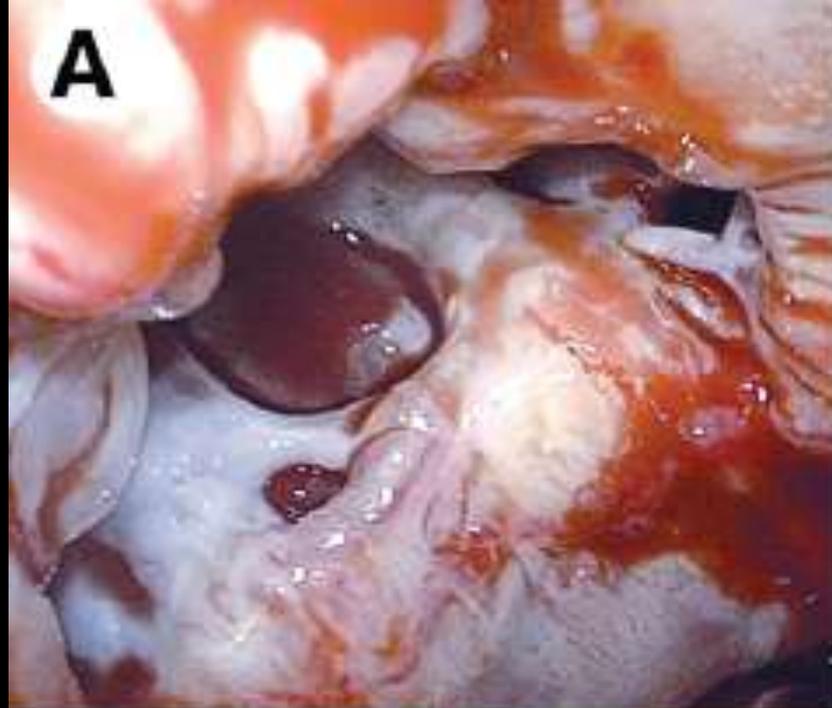
All ns

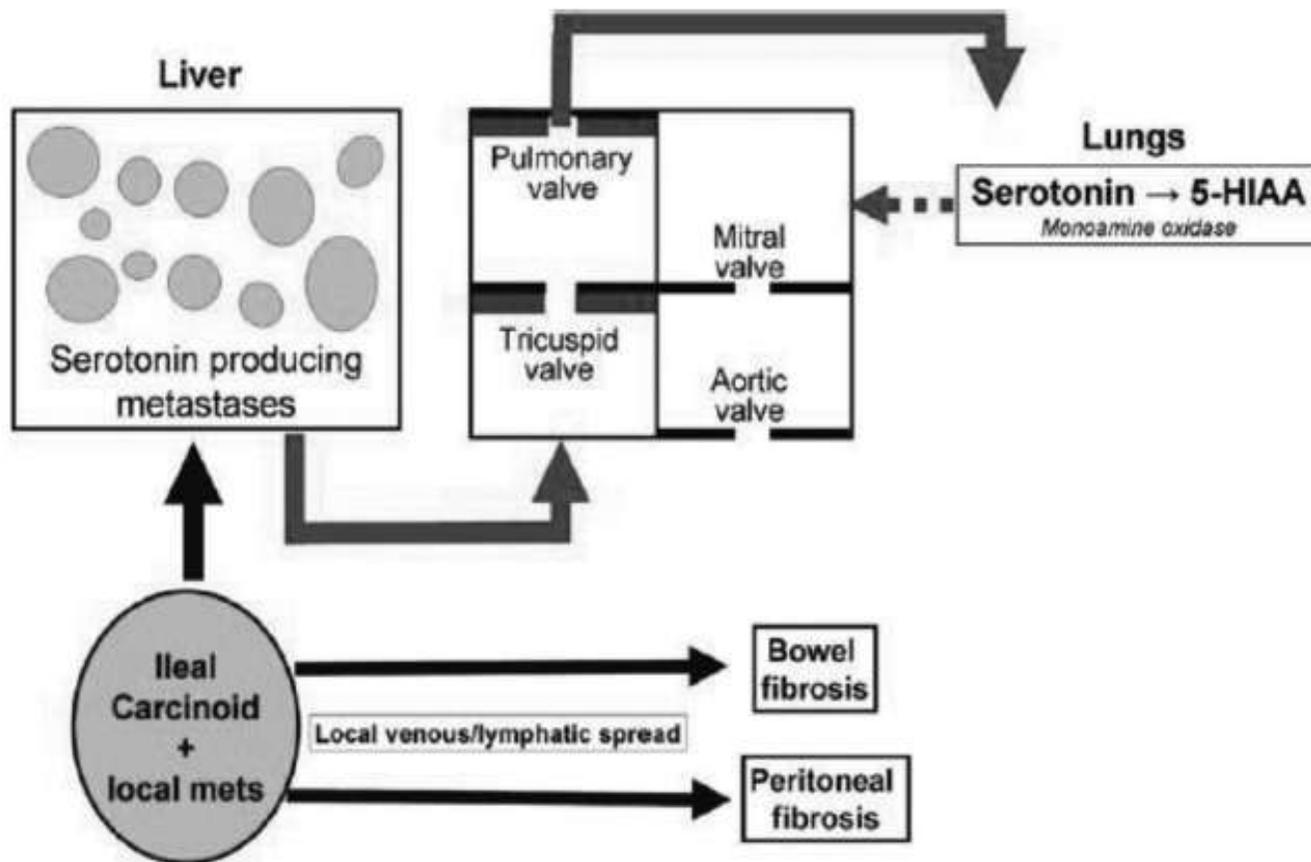
Carcinoid Syndrome

- Carcinoid tumours are rare affecting 1-2/ 100,000
- Most primary tumours are in gastro-intestinal tract, predominantly the appendix and terminal ileum. They can rarely occur in the bronchus and ovaries
- Carcinoid syndrome, usually a sign of disseminated disease, is a symptom complex manifested by episodic flushing, secretory diarrhoea, bronchospasm and hypotension caused by production of vasoactive substances (including 5-hydroxytryptamine)
- Carcinoid syndrome occurs when these vasoactive substances can reach the systemic circulation

Carcinoid Heart Disease

- Carcinoid Heart Disease (CHD) occurs in up to 70% of patients with carcinoid syndrome
- It is thought to occur due to the vasoactive substances secreted by the metastatic tumour in the liver, reaching the right side of the heart
- This leads to deposition of fibrous tissue on the endocardial surfaces of the heart
- As such it typically affects the function of the tricuspid and pulmonary valves





Carcinoid Heart Disease

- Up to 20% of patients with carcinoid syndrome present with CHD at diagnosis
- It is usually well tolerated initially but severe valve lesions can lead to breathlessness, fatigue and ankle oedema
- It is more common in patients with high levels of circulating vasoactive agents; as such high urinary 5-HIAA levels are common (5-HT is metabolised to urinary monoamine oxidases in the liver and lungs)

Carcinoid Heart Disease: Impact on Survival

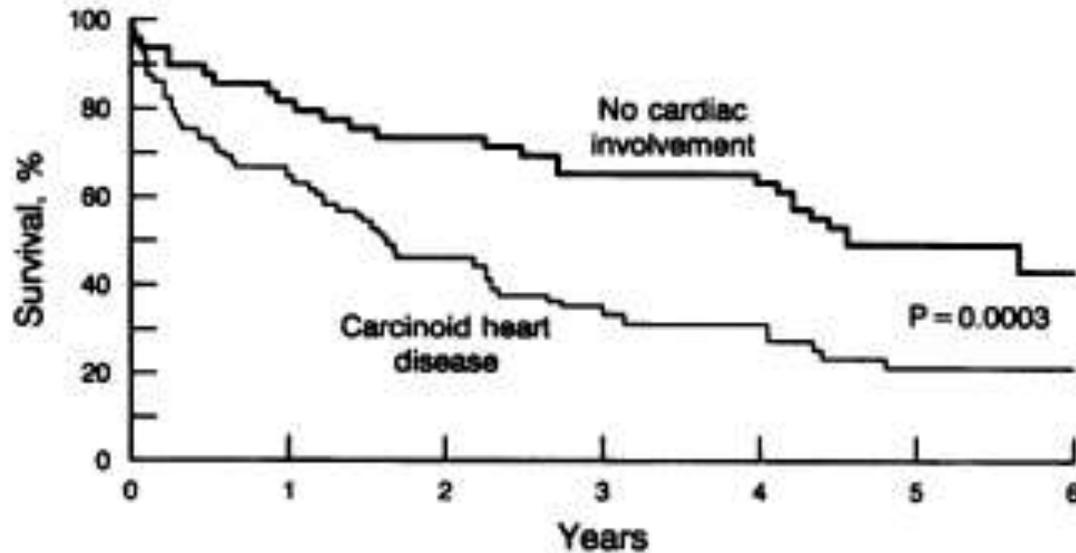


FIGURE 1. Curves compare the survival for 73 patients with echocardiographic evidence of carcinoid heart disease with that for 51 patients without cardiac involvement. Note the markedly improved 3- and 4-year survival of patients free of cardiac involvement.

Diagnosis CHD

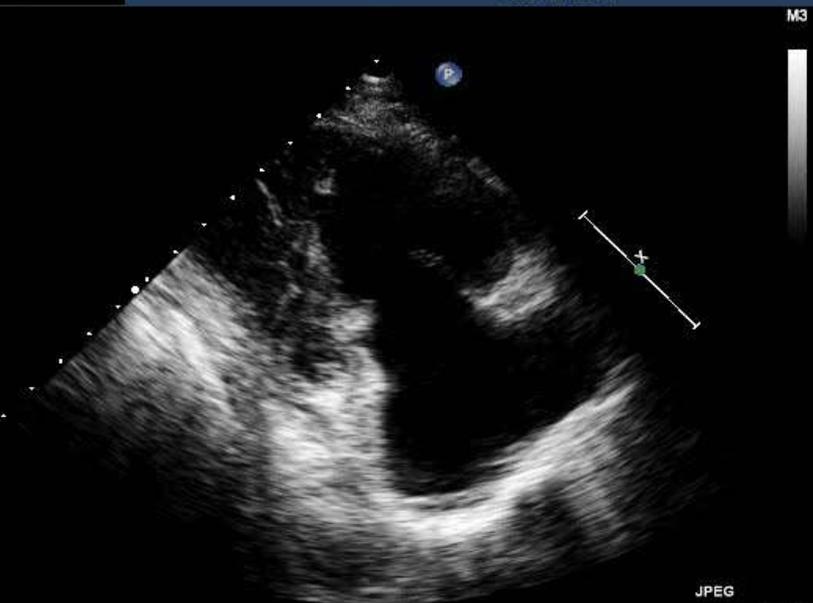
- Think of it!
- Symptoms of breathlessness
- Clinical signs: raised JVP, heart murmurs, ankle oedema
- Screen for it: NT-proBNP $>260\text{pg/ml}$, ≥ 3 flushing episodes a day, 24 hour urinary 5-HIAA $\geq 300\ \mu\text{mol/24 hours}$
- Diagnosis usually made with echocardiography

PHILIPS

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S5-1/Adult

FR 39Hz
14cm

2D
54%
C 50
P Low
HGen



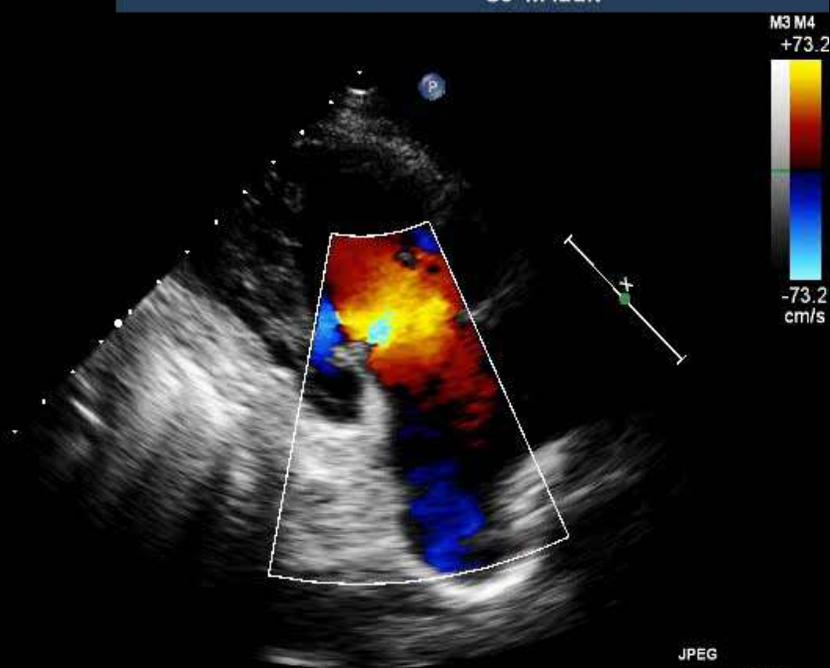
73 bpm

PHILIPS

08/11/2012 11:41:08 TIS2.3 MI 1.2
S5-1/Adult

FR 19Hz
14cm

2D
53%
C 50
P Low
HGen
CF
66%
2.5MHz
WF High
Med



71 bpm

PHILIPS

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S5-1/Adult

FR 49Hz
16cm

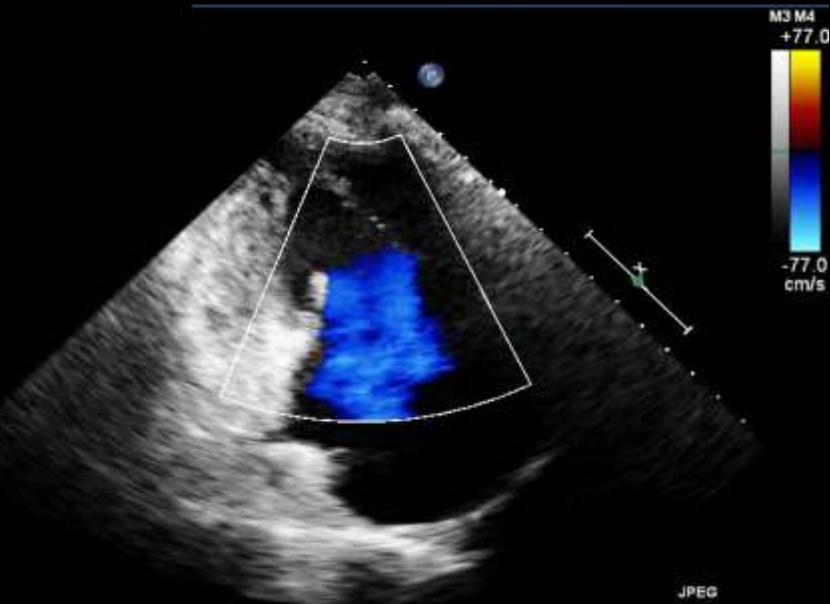
2D
76%
C 50
P Low
HGen



73 bpm

FR 15Hz
16cm

2D
77%
C 50
P Low
HGen
CF
68%
2.5MHz
WF High
Med



76 bpm

PHILIPS

08/11/2012 11:45:29 TIS0.3 MI 1.4

S5-1/Adult

Freq.: 5.0 MHz/5.0 MHz
FPS: 54.2

FR 39Hz
13cm

M3

2D
55%
C 50
P Low
HGen



JPEG

PHILIPS

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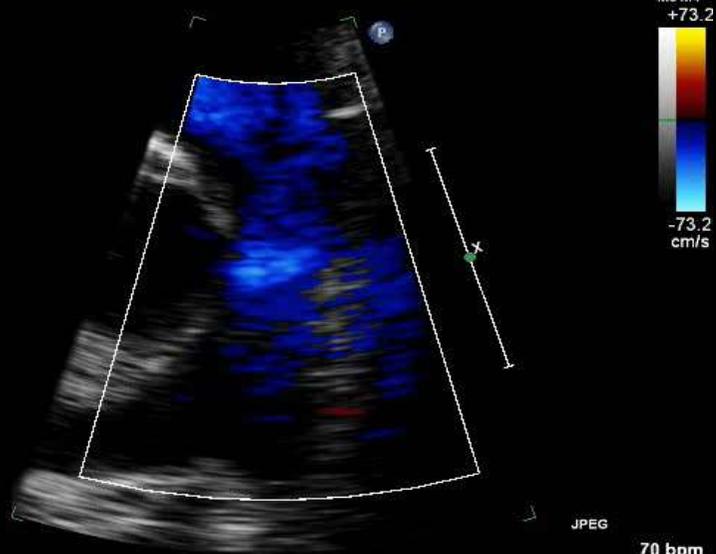
S5-1/Adult

Freq.: 5.0 MHz/5.0 MHz
FPS: 22.8/22.8

FR 23Hz
13cm

M3 M4
+73.2

2D
51%
C 50
P Low
HGen
CF
66%
2.5MHz
WF High
Med



JPEG

70 bpm



73



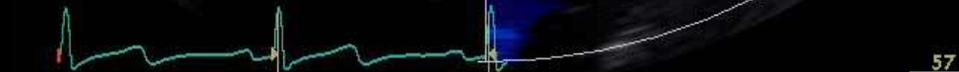
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73

68

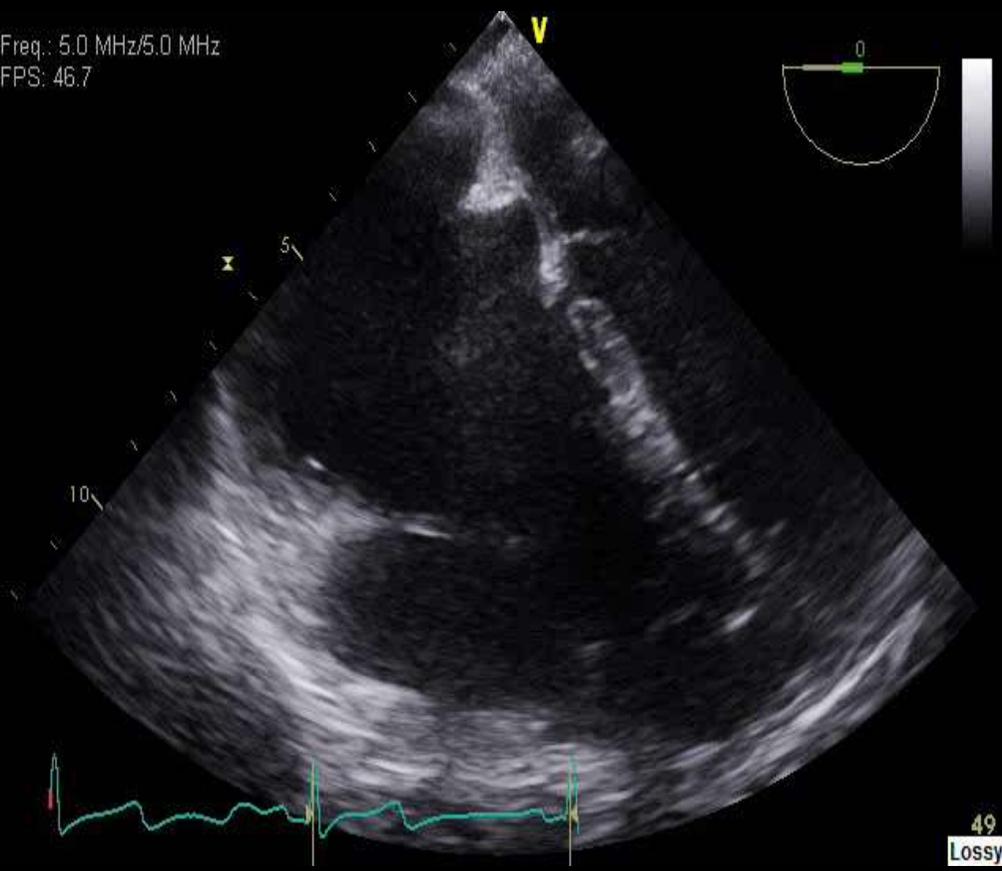
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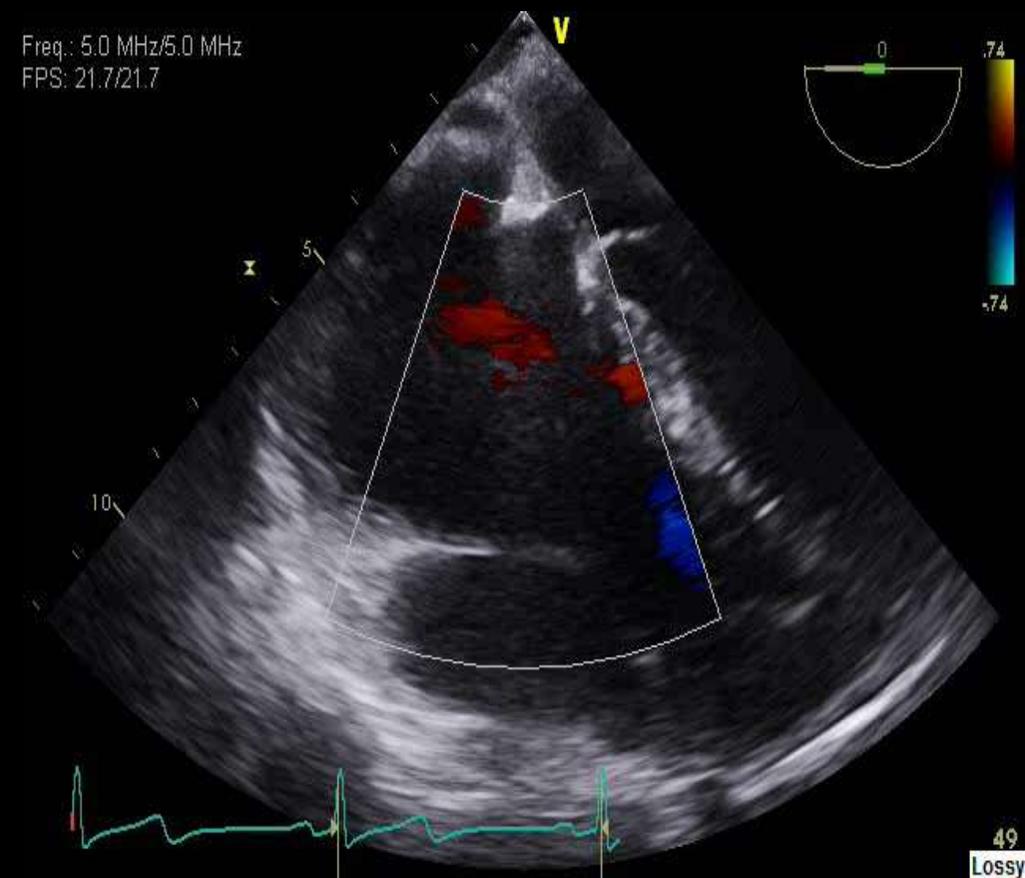
57

Lossy

Freq.: 5.0 MHz/5.0 MHz
FPS: 46.7



Freq.: 5.0 MHz/5.0 MHz
FPS: 21.7/21.7



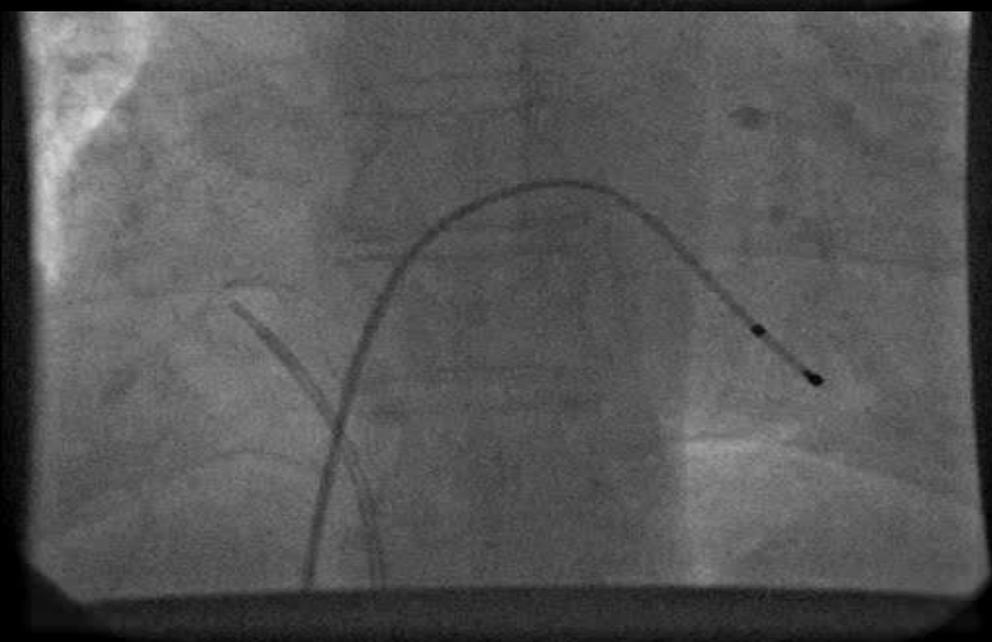
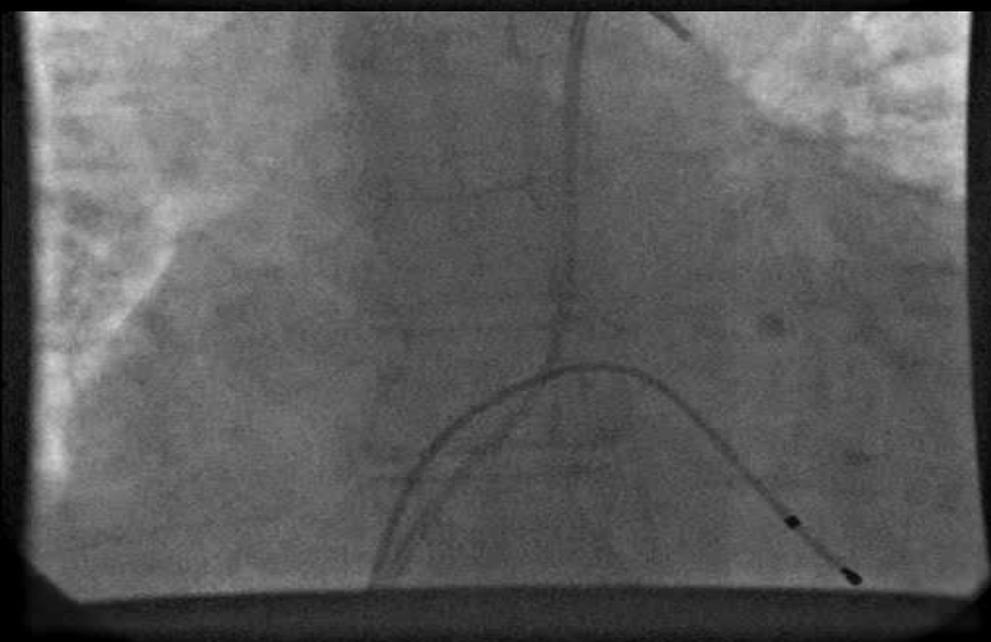
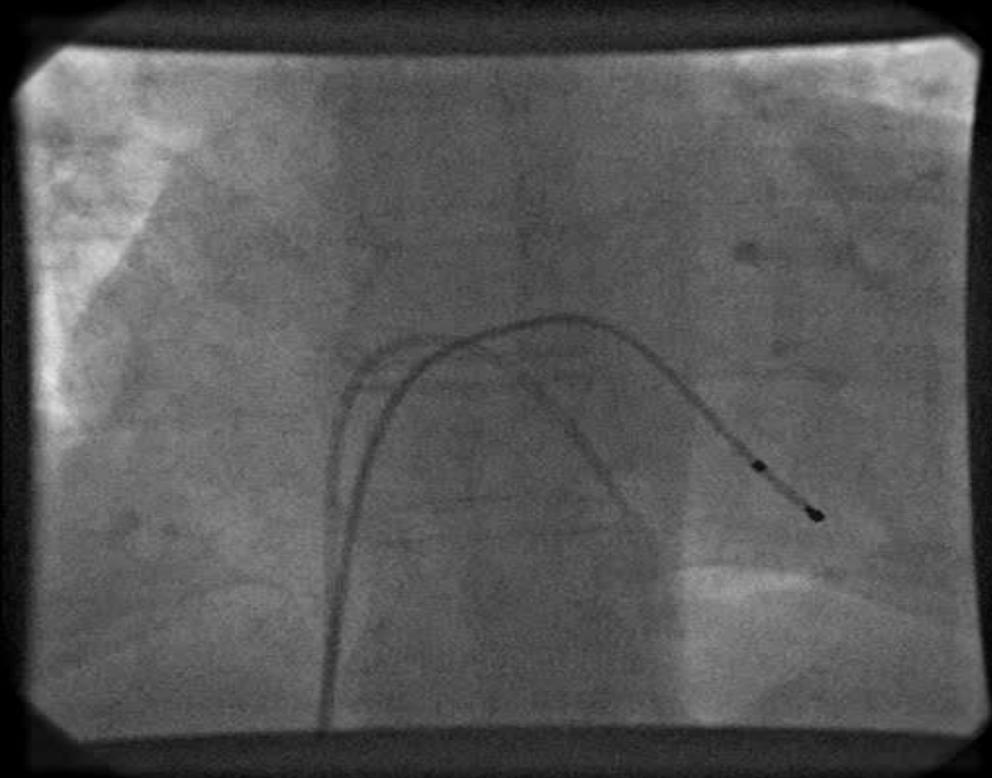
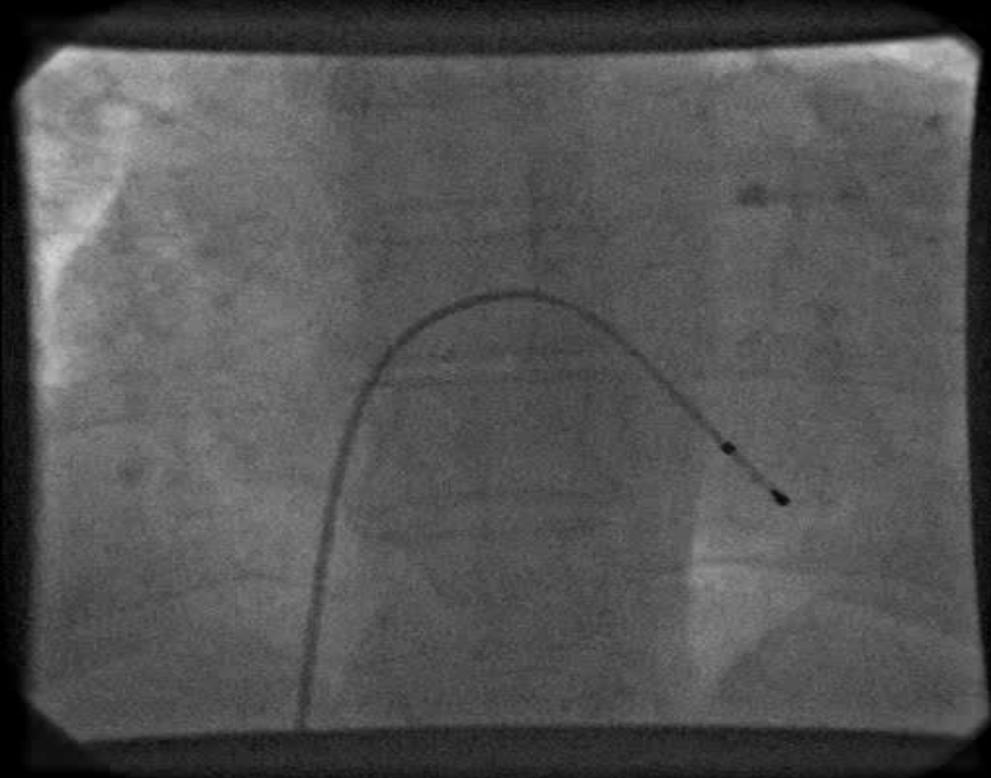


Management Options

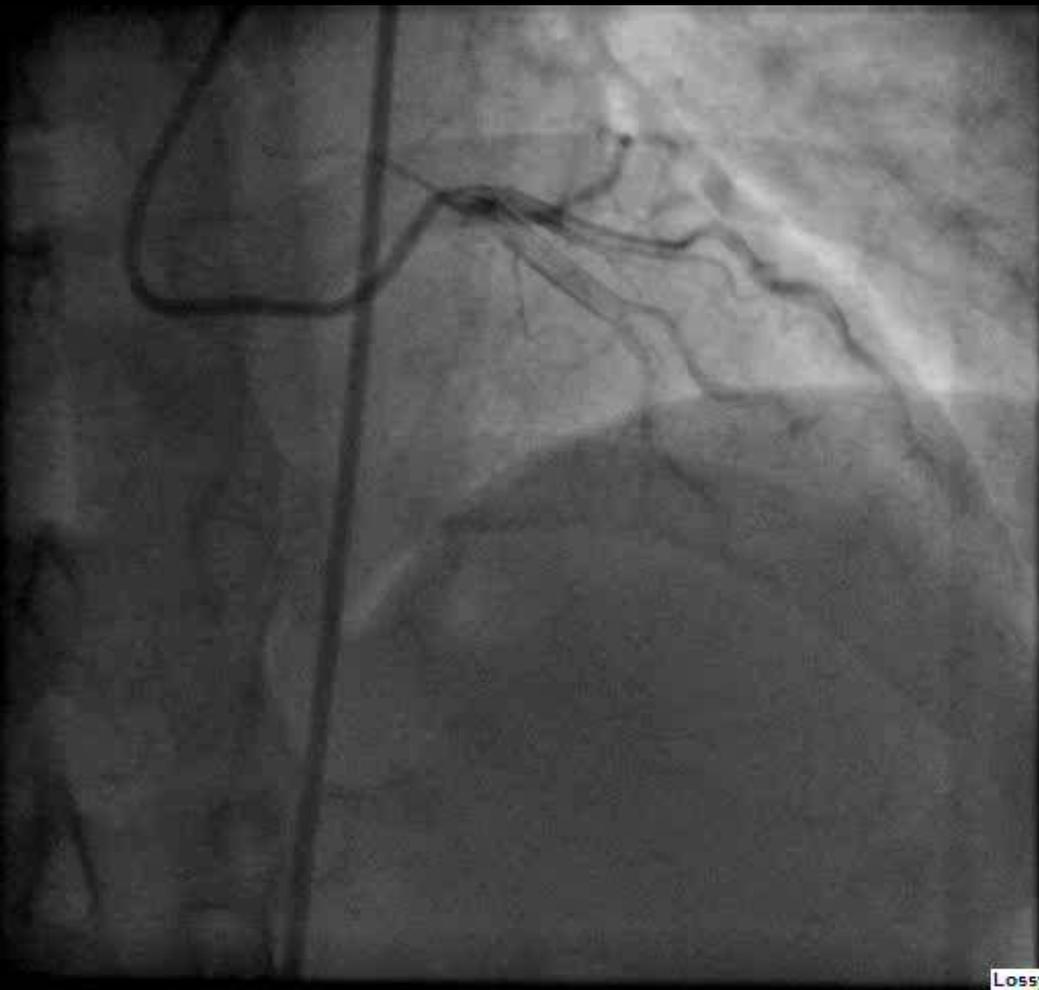
- Monitoring for symptoms with serial echos
- Medical therapy: priority is to reduce 5-HT levels with somatostatin analog therapy
- Symptoms can be treated with diuretics, aldosterone receptor antagonists, ? digoxin
- Surgery is reserved at present for symptomatic patients

Cardiac Catheter Laboratory





Coronary Angiography



Surgery for CHD

- Definitive therapy for valvular heart disease
- Not without risk: mortality 10-20% at 30 days
- Anaesthetic challenge
- Improves symptoms
- ? Mortality benefit
- May make liver surgery/ embolisation safer due to reduction in venous pressure
- Choice of valve replacements: mechanical of bioprosthetic

Outcomes, risks and complications of cardiac surgery for carcinoid heart disease

Sanjeev Bhattacharyya^a, Shahzad G. Raja^b, Christos Toumpanakis^c, Martyn E. Caplin^c,
Gilles D. Dreyfus^b, Joseph Davar^{a,*}

- Royal Free data published 2011
- 252 patients with carcinoid syndrome screened 2006-2010
- 40 patients severe valvular dysfunction
- 22 underwent surgery, mean age 60
- 100% TVR, 86% PVR, 4 had left sided surgery and 6 had PFO closure
- Bioprosthetic valves in all
- 30 day mortality 18%. 1 yr 56% alive, 2 years 44% alive

Rotterdam series: 19 patients

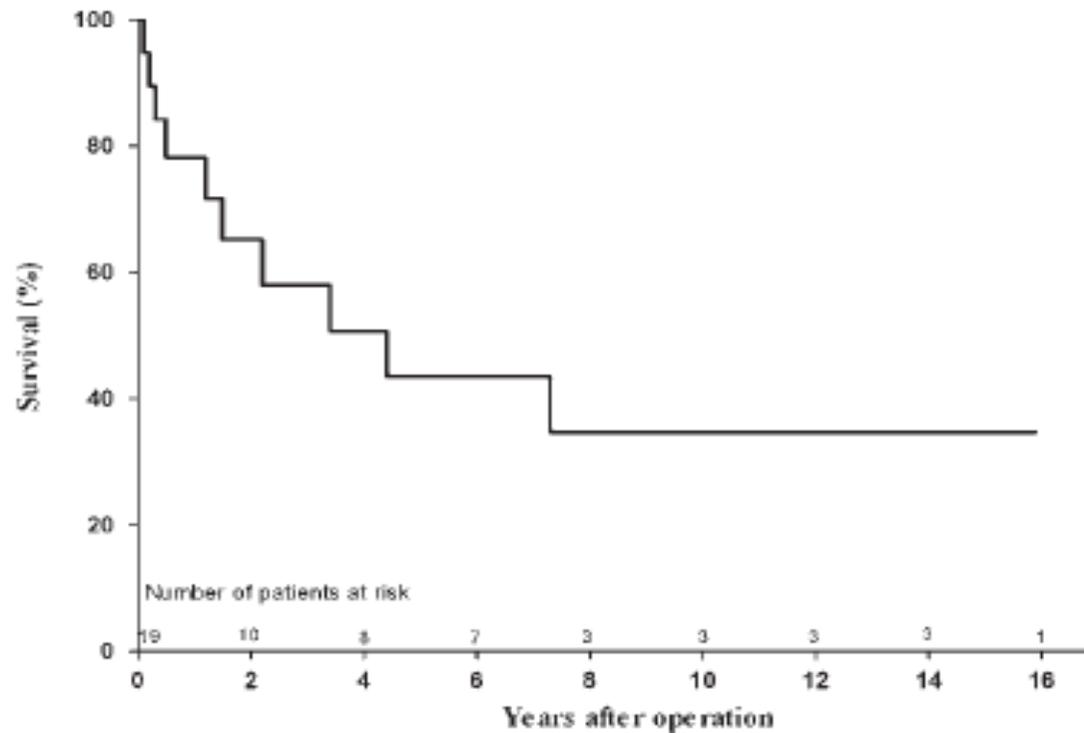


Figure 1: Kaplan-Meier survival curve of patients with carcinoid syndrome undergoing valve replacement.



Cardiac Intensive Care Unit



PHILIPS

27/06/2013 12:03:40

TIS0.9 MI 1.4

S5-1/Adult

FR 73Hz
14cm

M3

2D
60%
C 50
P Low
HGen



PHILIPS

27/06/2013 12:03:47

TIS2.3 MI 1.2

S5-1/Adult

FR 18Hz
14cm

M3 M4
+67.0

2D
57%
C 50
P Low
HGen



JPEG

90 bpm

PHILIPS

28/06/2013 10:47:57

TIS1.5 MI 1.1

S5-1/Adult

FR 14Hz
12cm

M3 M4
+61.6

2D
63%
C 50
P Low
HGen

CF
66%
2.5MHz
WF High
Med



JPEG

53 bpm

Summary

- Carcinoid heart disease is common in patients with carcinoid syndrome; but very rare in population terms
- It is associated with increased morbidity and mortality
- Valve surgery offers improved symptoms and may help long-term outlook; timing is crucial
- Specialist care improves outcomes: management of CHD is challenging and requires a multidisciplinary team approach with interested specialists
- Treatment should be focussed in high volume centres to maximise clinical expertise

Discussion