

Profile of Patients with Abdominal Aortic Aneurysm Referred to the Vascular Unit, Hospital Kuala Lumpur

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Summary

A prospective collection of patients referred with a diagnosis of abdominal aortic aneurysm (AAA) to the Vascular Unit, Hospital Kuala Lumpur (HKL) between February 1993 to July 1995 were analysed. There were a total of 124 patients, with a 85 per cent (%) male preponderance. Malays formed the largest ethnic group contributing about 60%. The median age of the patients was 69 years (range 49-84). Emergency referrals and admission accounted for 46.8% of patients. Hypertension and ischaemic heart disease were the two most common co-morbid medical conditions. The number of patients who underwent surgery was only 56 (45.2%). Of this total, 34 were done electively with an operative mortality of 8.8% (3pts). The operative mortality for emergency surgery was 59.1%. AAA is relatively common in the older age group, especially in men and it should be actively looked for, as elective surgery can be offered with acceptable morbidity and mortality.

Key Words: Abdominal aortic aneurysm, Elective surgery, Emergency surgery

Introduction

Vascular surgical services were first established in the government surgical unit of Hospital Kuala Lumpur in February 1993. One of the more common vascular problems managed by our unit is infra renal abdominal aortic aneurysm. Abdominal aortic aneurysm (AAA) is usually a disease of the elderly population. As our population ages, the incidence of AAA is bound to increase. This phenomenon has been observed elsewhere. In a screening programme carried out in Oxford, UK, the incidence of asymptomatic AAA in men between 55 and 75 old was 5.4%. There are no figures for our country. A prospective collection of data on patients referred and admitted to our unit was carried out to determine the patient profile and also referral patterns. Using this data, we hope to be able to improve our services and also draw up guidelines for efficient utilisation of available resources.

Methods

All patients referred to and admitted both electively and as emergency to the Vascular Unit, Hospital Kuala Lumpur between February 1993 to July 1995 (30 months) with a confirmed diagnosis of abdominal aortic aneurysm was prospectively collected and data entered into a standard form. Diagnosis was made either clinically or radiologically by the referring clinician and confirmed by us either using ultrasonography and/or CT scan. We define aneurysm as a dilatation of the aorta of more than 3 cm in the maximum diameter. Elective admissions are patients admitted by the vascular unit to the ward for further evaluation or surgery. Emergency admissions are patients admitted to our unit because the referring clinicians felt that the patient required urgent attention of a vascular surgeon. These patients had not been reviewed at the surgical outpatient prior to admission, i.e. direct admissions. Therefore not all

patients who were referred as an emergency had leaking or ruptured aneurysms. Patients seen at the Surgical Outpatient Clinic and who subsequently defaulted follow-up were not included. Patients referred by other hospitals, usually as emergencies, via telephone, who were not accepted by us (for a variety of reasons), were also not included in the study. This was due to logistic problems in obtaining complete data.

Results

There were a total of 124 patients referred and admitted to the Vascular Unit, HKL during the study period. The demographic data is shown in Table I. There was a male preponderance of 105 patients (84.7%) with Malays forming the largest racial group (60.5%). The median age group was 69 years, with 87.9% (109

patients) being 60 years old and above (Figure 1). More than 50% of the patients were from outside the Klang valley. Elective referrals constituted 53.2% (66 patients) of cases, while the rest were emergency. Hypertension was the most common concomitant medical condition with 42 patients (33.9%), followed by ischaemic heart disease with 22 patients (17.7%). Table II shows the distribution of medical illness amongst our patients.

The total number of patients undergoing surgery was 56 with 34 (60.7%) of them being done as an elective case. The mortality rate for elective cases was 8.8%. Of the 66 patients referred to us electively, 27 (40.9%) had undergone surgery, 6 (9.1%) were still awaiting surgery during the study period. The rest of the patients, 33 (50%), no surgery was carried out for a variety of reasons (Table III) with poor cardiovascular status as the main

Table I
Demographic data of the 124 patients admitted to the Vascular Unit, HKL between Feb 1993 to July 1995

Characteristics		No. of Patients
Age:	Median (IQR)	: 69 (62 - 74) years
	Range	: (49 - 84) years
		: 105 (84.7%)
	Female	: 19 (15.3%)
Ethnic Origin:	Malay	: 75 (60.5%)
	Chinese	: 31 (25.0%)
	Iban	: 10 (7.3%)
	Indian	: 4 (3.2%)
	Others	: 4 (3.2%)
Residence:	Klang Valley	: 33 (26.6%)
	Outside Klang Valley	: 69 (55.7%)
	Sabah/Sarawak	: 16 (12.9%)
	Not Known	: 6 (4.8%)

IQR: Inter-quartile range

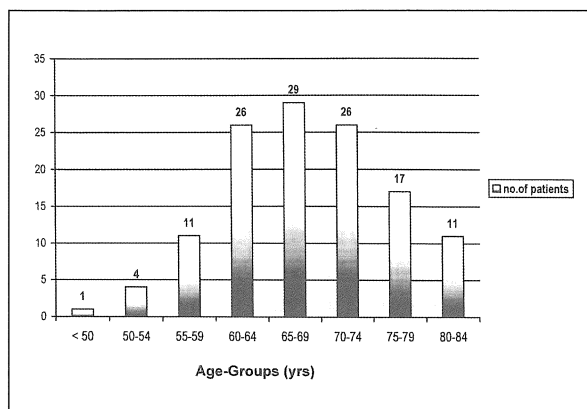


Fig. 1: Distribution by age-groups of patients admitted to the vascular unit, HKL between Feb 1993 to July 1995

Table II

Distribution of medical illness in patients with AAA referred to the Vascular Unit, HKL

Hypertension	42 (33.9%)
Ischaemic Heart Disease	22 (17.7%)
Chronic Obstructive Airway	8 (6.5%)
Renal Disease	10 (8.1%)
Malignancy	6 (4.8%)
Diabetes Mellitus	4 (3.2%)

cause in 12 patients (18.2%). The outcome of patients referred as an emergency is shown in Table IV. Only 22 patients (37.9%) underwent emergency surgery with a mortality of 59.1% (13 patients), while 5 died awaiting surgery. The reasons for not offering surgery to 20 patients in this group is shown in Table V.

Discussion

Abdominal aortic aneurysm is a relatively common

Table III

Reasons for deferring surgery in patients with AAA referred electively.

Poor Cardiovascular Status	12 (18.2%)
Defaulted follow-up	5 (7.6%)
Small AAA	4 (6.1%)
Malignancy	2 (3.0%)
Peptic Ulcer Disease	2 (3.0%)
Refused Surgery	2 (3.0%)
Pulmonary Tuberculosis	2 (3.0%)
Poor Renal Function	1 (1.5%)
Benign Prostatic Hyperplasia	1 (1.5%)
Liver Cirrhosis	1 (1.5%)
Ruptured in Ward	1 (1.5%)

Table IV

Outcome of all emergency referrals/admissions to the Vascular unit, HKL between February 1993 to July 1995

Emergency operations	22 (37.9%)
Elective operations	7 (12.1%)
Died awaiting op. (rupture)	5 (8.6%)
Awaiting elective op.	4 (6.9%)
No surgery planned (Discharged home)	20 (34.5%)

condition in the elderly. As the proportion of the elderly in the population increases, the incidence of AAA will rise. There is also a true increase in the incidence of AAA in the Western population. Since the first successful application of graft replacement in a patient with AAA by Dubost and associates in 1951,

Table V
Reasons for non-surgical management of patients with AAA referred as an emergency

Total number of cases	20
Poor cardiac status	8 (40%)
Peptic ulcer disease	4 (20%)
Referred to IJN	2 (10%)
Small Aneurysm	1 (5%)
Malignancy	1 (5%)
Chronic Obs. Airway Disease	1 (5%)
Uncontrolled Hypertension	1 (5%)
Gangrene to leg	1 (5%)
At own risk discharge	1 (5%)

this procedure has established itself as a relatively safe procedure in elective cases with an average operative mortality of less than 5%.

It has been estimated that the prevalence of AAA in men to be 2.6% in the 60-64 year age group¹, 6% at 65-74 years² and 9% in those above 75 years³. A male preponderance has been shown in other series^{4,5}. In our series the male: female ratio was about 5.5: 1. The principle indication for the repair of AAA is the prevention of rupture to prolong life. The other potential complications thrombosis, distal embolism and erosion (fistulation) into adjacent structures especially the duodenum and vena cava, are less common.

The size of the aneurysm (maximum diameter) is an important indicator as various studies have shown that the risk of rupture increases with increasing diameter. Therefore in asymptomatic AAA, the maximum diameter is one of the main indicators for surgery. The Joint Council of Society for Vascular Surgery and the North American Chapter of the International Society for Cardiovascular Surgery recommend a size of > 4cm if

the patient is fit and has a life expectancy of more than 2 years⁶. However others have recommended a larger diameter of 5 to 6 cm before offering surgery. These patients would then be on close follow-up and surgery offered if they develop symptoms or if there is rapid expansion of the aneurysm on serial ultrasound examination (6 monthly). The usual expansion of an aneurysm is about 0.2cm to 0.4cm/year with a median of 0.3cm/year⁷. An expansion of more than 0.5cm in six months should warrant a review in the management of the patient.

As with other series, our patients with AAA are in the older age group with a median age of 69 years. Furthermore many of them have associated medical illnesses with cardiovascular diseases, with hypertension being the most common. Co-morbid medical conditions and age are important as they affect the decision to proceed with surgery and also long term survival^{5,6,8}. This was the case in 16 patients (24%) who were electively referred, but surgery was not offered because of severe underlying medical illness. As previously reported⁹, cardiovascular diseases were common, but diabetes mellitus was present in only about 4 patients (3.2%). This is in contrast to patients with peripheral occlusive disease where a large number will have diabetes mellitus.

The number of elective patients undergoing surgery was 27 (40.9%) with another 6 (9.1%) awaiting. Therefore only about 50% of the electively referred cases were suitable candidates for surgery. Poor cardiovascular status is one of the main reasons for deferring surgical treatment. We now advise referring clinicians to do a complete medical assessment prior to sending their patients to us.

We usually offer surgery to fit, asymptomatic individuals if the size of the aneurysm is greater than 5.0 cm. Symptomatic or rapidly expanding AAA should have surgery as soon as possible regardless of size, unless severe underlying medical condition or pre-terminal events are present in the patient which precludes any improvement in the quality of life. This also applies to leaking or ruptured AAA. As with the experience elsewhere^{9,10,11} elective surgery can be done with acceptable operative mortality. However, emergency surgery for leaking or ruptured AAA is associated with a much higher mortality and morbidity. Our operative

mortality was 13/22 points (59.1%). Improvement in both surgical techniques and anaesthesia coupled with better selection of patients, we hope morbidity and mortality will decrease. This however does not reduce the number of cases of ruptured AAA who die before reaching the hospital. Prevention of this catastrophic episode should be the goal. Screening of high risk individuals, namely men above the age of 60 years, by ultrasound has been advocated to detect asymptomatic AAA¹. In our series, 87.9% of our patients were 60 years and above. As an initial step, it may be more prudent, as well as practical, for clinicians who regularly see patients in this high risk category, to do a quick abdominal examination to look for a pulsatile mass. They may then proceed to radiological investigation for confirmation in suspicious cases. As more than 50% of our patients are from outside the Klang valley, we usually advice referring clinicians to discuss their

cases with us prior to sending them as it will reduce unnecessary admissions of unsuitable or reluctant patients. This is especially relevant to emergency referrals. This is important as it will allow more efficient utilisation of resources and avoid unnecessary referrals and admissions.

Conclusion

Elective surgery for AAA in selected patients has an acceptable operative mortality. Emergency surgery for leaking and ruptured AAA is associated with a high operative mortality. Better clinical and radiological assessment by referring clinicians may reduce unnecessary emergency admissions. Early detection of AAA in high-risk individuals together with early elective referral to a vascular unit is recommended.

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