Original Article

The Challenges Facing the Management of Arterial Aneurysm in UNTH, Enugu

NWAFOR IA, EZE JC, EZEMBA N, ANYANWU CH

All of National Cardiothoracic Centre at UNTH, Ituku-Ozalla. Enugu State, Nigeria.

ABSTRACT:

BACKGROUND: The management of arterial aneurysm either central or peripheral has undergone evolution over the past decades. We encounter both true and pseudo aneurysm on regular basis with its complications.

OBJECTIVE: To assess the challenges of managing arterial aneurysm at UNTH, Enugu in view of the health implications of the condition.

METHOD: Medical records of all patients with documented arterial aneurysm over a 5-year period (2007-2011) were reviewed. Data collected and documented included patients' demographics, type of vessels involved, investigative tools used in confirming the diagnosis, type of treatment, outcome and length of hospital stay.

RESULT: A total of 37 patients were managed for arterial aneurysm during the period under review. These consisted of 24 males (64.9%) and 13 females (35.2%). Age range was 11-78 years with a mean of 2.4 years. Central aneurysms involved ascending, arch and descending aorta as well as abdominal aorta. Peripheral ones affected femoral, axillary, brachial, and popliteal artery. The central aneurysms with the exception of abdominal aortic aneurysms were managed conservatively. Those that failed conservative management were referred to centres with expertise and facilities for on pump surgery. The peripheral ones in addition to abdominal aortic aneurysms were managed operatively with good outcome. The challenges identified in the management included non-availability of on pump expertise and prosthesis, late presentation of patients, under utilisation of CT and or MRI, poor compliance to antihypertensive drugs and poor follow up.

CONCLUSION: Intervention in arterial aneurysms is the gold standard but not yet easily available and affordable at this centre. The challenges that have been identified are real and need to be addressed in order to deliver optimal care to patients within our domain. Efforts are underway in tackling them.

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INTRODUCTION

University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu in the South East of Nigeria, is the centre designated for the management of cardiovascular and thoracic diseases by the Federal Government of Nigeria. It has shouldered this responsibility to a reasonable extent. However and in particular, there are challenges facing the management of arterial aneurysm currently. These challenges manifested themselves in the 37 patients with such pathology managed over the last five years (2007-2011).

Aneurysm is defined as an enlargement of an artery more than 50% of its anatomic diameter[1]. It can develop in any location within the arterial net work but is commonly found in the aorta, iliac, popliteal and femoral arteries in the decreasing order of frequency. The carotid, renal, visceral and upper extremity aortic arteries can also develop aneurysm. In addition, intracranial cerebrovascular aneurysm is distinct from extra-cranial with regard to age, risk factors, clinical features and treatment. The aetiology of arterial aneurysm is unknown but risk factors such as hypertension, hyperlipidemia, diabetes mellitus, age and cigarette smoking are well documented[2]. Pseudoaneurysm do occur as a result of injury to the artery with perforation and subsequent adjacent swelling from extravasations.

PATIENTS AND METHODS

Medical records of 37 patients with documented arterial aneurysm over a 5-year period (2007-2011) were searched for information. Those with intracranial aneurysms were excluded from this study. Data collected and documented included patients' demographics, types of vessels involved, investigative tools used for the diagnosis and the type of treatment received. Others are the outcome and the length of hospital stay. Analysis was by simple statistics and percentage.

RESULT

Table 1: Distribution of the aneurysms

Age(yrs)	Male	Female	Total
10-39	2	8	10(27.03%)
40-69	9	9	18(48.65%)
70-99	3	6	9(24.32%)
Grand total	14	23	37 (100%)

Table 2: Central aneurysms

Type of involved vessel	Number	True aneurysm	Pseudoaneurysm
Ascending thoracic aorta	2	+	-
Arch of aorta	3	+	-
Descending thoracic aorta	4	+	-
Acscending aorta and arch	3	+	-
Whole aorta	2	+	-
Thoracoabdominal aorta	0	0	-
Suprarenal abdominal aorta	1	+	-
Infrarenal abdominal aorta	4	+	-
Total	19		

Key (-) indicates negative while (+) indicates positive

Correspondence: Nwafor IA, Department of Surgery, UNTH, PMB 01129, Enugu. Postal Code 400001. Enugu State. igbochinanya2@yahoo.com +234 803 778 4860

Table 3: Peripheral artery aneurysms

Type of involve d vessel	Number	True aneurysm	Pseudoaneurysm
Superficial temporal artery	1	-	+
Common carotid artery	1	-	+
Axillary artery	2	-	+
Brachial artery	2		+
Common iliac artery	1	+	-
Femoral artery	5	+	-
Popliteal artery	2	-	+
Dorsalis pedis artery	1	-	+
Total	15		

Key (-) indicates negative while (+), indicates positive

Discussion

Diagnosis of peripheral aneurysms is easier than the central types as it is often clinically obvious and simple duplex ultrasound, a facility that is easily available and affordable augments clinical effort in reaching definitive diagnosis in some cases[3]. The central aneurysms require additional diagnostic tools such as chest X-ray, abdominal X-ray, CT-scan and MRI in certain situations. The abdominal ultrasound may be of help, but is limited in information about the infra and suprarenal status of the aortic aneurysm as well as presence and absence of leakage[4]. The CT-scan is very useful but it is costly and most patients cannot afford it. MRI is even more costly and is not readily available. Moreover, the interpretation of the investigation is observer dependent and level of accuracy is still worrisome as the majority of the reporters have low level of experience. False positive and negative are regularly encountered. Currently the hospital lacks MRI and angiographic suites. The available CT-scan is epileptic in function. Some of the services of the above facilities are usually obtained from outside the teaching hospital.

Medical management of an established aneurysm is like buying time as the ultimate is surgical especially for large ones. This medical management is of utmost importance when surgery is contraindicated[5]. The greater numbers of peripheral aneurysms are pseudo types as they mostly due to trauma. The central ones are due to degenerative changes as revealed by histology for the surgically managed cases. Genetic[6] and environment factors also do play roles. At times, UNTH, lose sum of money used in procuring prostheses as the patients they were used in treating could not pay. Since then, the hospital stopped stockpiling some prostheses like vascular grafts[7] among others and resorted to cash and carry method. Most of the needed grafts in our cases were sourced on prescription by local suppliers who get them from abroad, precisely from India and South Africa. This arrangement takes some time with delay. Due to this state of affairs there are no readily available vascular prostheses like Dacron or Teflon on the UNTH shelf for use in repair of aneurysms especially in ruptured cases presenting as emergency[8]. One can imagine what fate will befall a patient as emergency for ruptured aneurysm that required surgical intervention when there is non available with the supplier locally.

The other challenge identified is the issue of personnel. The surgical skill for the management of peripheral as well as infra-renal abdominal aortic aneurysm is firmly established in our center[9]. This was demonstrated in an earlier study at the same centre[10]. What is lacking is the skill for the surgical repair of ascending, aortic arch and descending thoracic aortic aneurysms including the ascending aortic aneurysm with associated aortic incompetence that do require modified Bental's procedure. This is because of the absence high technology system support during such procedure. The challenges appear enormous but are not insurmountable. The solution of the above challenges require continuous training and retraining of manpower in the related field such as vascular surgery, cardiothoracic surgery, perfusion for on pump surgery, anaesthesiology and interventional radiology. Interventional radiology needs to come on board at UNTH, bearing in mind the benefits and disadvantages over surgery.

The general challenges affecting the functionality of the hospital were not considered and these include power, finance, computer literacy etc as were highlighted in another study[11]. The provision of equipment such as angiographic suite, MRI and functional CT scan are sine qua non to improved management of patients with arterial aneurysms in UNTH, Enugu. Government effort in this directive cannot be overemphasised. The issue of consumables such as vascular grafts can be sorted out through provision of revolving fund.

Conclusion: The challenges are divided into two broad categories. One is the issue of availability of equipment, both consumable and non consumable while the other has to do with personnel. As intervention in arterial aneurysms is the gold standard, it is not yet easily available and affordable at this centre. Therefore the challenges that have been identified are real and need to be addressed in order to deliver optimal care to patients within our domain. However, efforts are underway in providing the solutions.

REFERENCE

1. Johnson KW, Rutherford KB, Tilson MD et al. Suggested standard for reporting of an arterial aneurysm; submitted on reporting standard for arterial adhoc committee on reporting standards, Society for Vascular Surgery and North American chapter, Interventional Society for Cardiovascular Surgery. J. Vasc Surg 13; 452-458, 1981.
2. Ernst CB. Abdominal aortic aneurysm. New Eng J. Medicine 1993; 328: 1167.
3. Fielding JW, Blacxk J, Ashton F, Slaney G and Campbell DJ. Diagnosis and management of 528

abdominal aortic aneurysm. BMJ, 1981; 283:- 355.
4. Crawford ES, Saleh SA, Babb 3rd JW, Glaeser DH, Vaccaro PS and Silvers A. Infra-renal abdominal aortic aneurysm; factors influencing survival after operation performed over a 25 year period. Ann Surg 1981 June; 1993(6): 699-709.
5. Eric FS, Celine B, Robert WT. Prospects for the medical management of abdominal aortic aneurysm. Vasc Endovascular Surgery, 2003; vol 37, no 3: 151-163.
6. Kuivanemi H, et al. Genetic causes of aortic aneurysm. Unlearning at least part of what the textbooks say. J. Clin Invest 1991;88; 1441.
7. Wasselius J, Malmsted J, Kalin Bo Larson S, Smulin A, Heclin U and Jacobsason H. High 18F-FDG uptake in synthetic aortic vascular graftsin PET/CT in symptomatic and asymptomatics. J Nucl Med 2008; 49: 1601-1605.
8. Musa AA, Lebioson CO, Akiode O, Shonubi AMU. Ruptured false iliac artery aneurysm, a case report from Nigeria. African Health Sci 2005 Sept; 5(3) :265-269.
9. Anyanwu CH, Ude AC, swarup AS, Umeral BC, and Udekwu FA. Traumatic artery aneurysm and arteriovenous fistula in Nigeria. Thorac Cardiovasc Surg 1980 Aug;28(4) :265-8.
10. Eze J. C., Ezemba N. and Adamu Y. A Study of extra cranial aneurysms at UNTH in Enugu, Nigeria. Nig J. Clin Pract. Sept 2010 Vol. 13(3): 272-275.
11. Eze J.C. and Ezemba N. Open heart surgery in Nigeria: indications and challenges. Texas Heart Institute J. 2007; 34: 8-10.