RESULTS OF ENDOVASCULAR INTERVENTION TO TREAT INFRARENAL ABDOMINAL AORTIC ANEURYSM IN THE ELDERLY PATIENTS AT VIET DUC FRIENDSHIP HOSPITAL

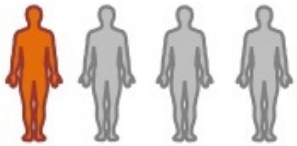
Le Nhat Tien and colleagues

TỔNG QUAN

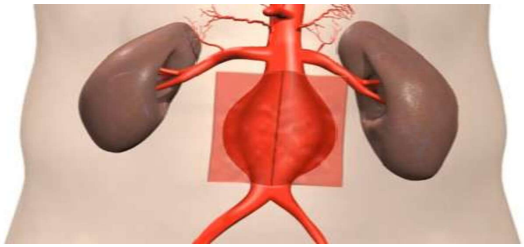
AAA

The 13th leading cause of death in the United States

4,500 deaths/year due to rupture



Male > Female



4% population

Tỉ lệ mắc

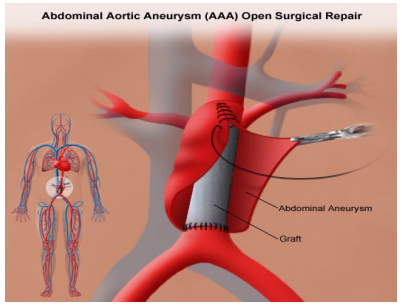
Eldely patien

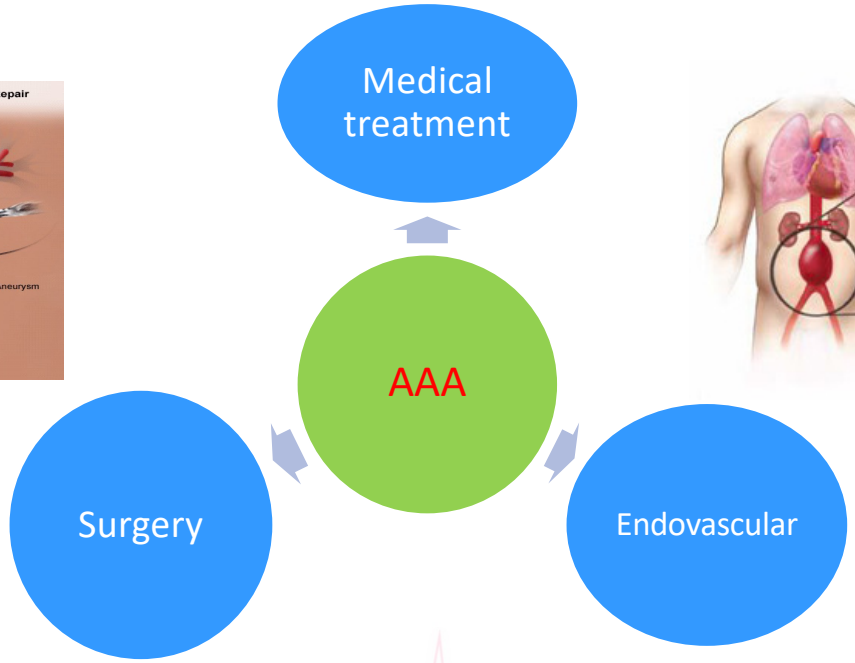
>65

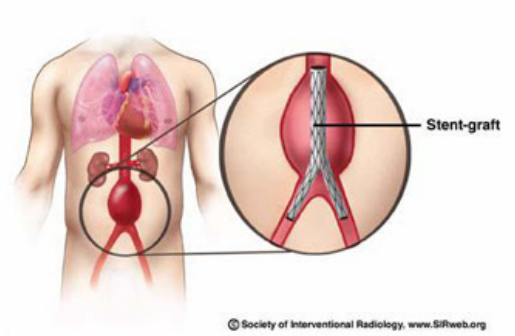
Treatment costs are huge

Umebayashi R, Uchida HA, Wada J. Abdominal aortic aneurysm in aged population. Aging (Albany NY). Dec 6 2018;10(12):3650-3651

TREATMENT AAA







Treatment

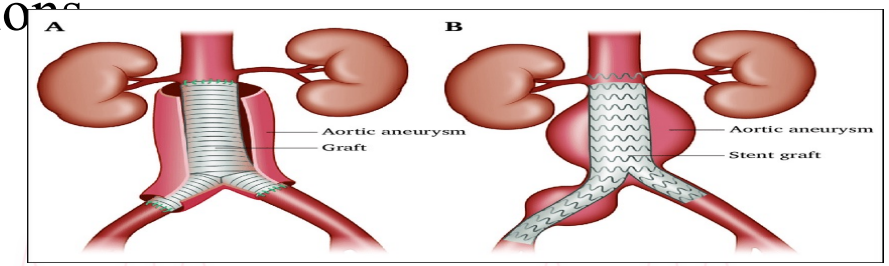
Surgery Repair: A classic solution, but limited for patients with advanced age and many underlying diseases.

Endovascular intervention with stent graft placement:

is a promising, highly effective, less invasive treatment in the world and is increasingly being applied in Vietnam today.

Advantages: Short hospital stay, low rate of complications and early death.

Disadvantages: Needs to be closely monitored long term to ensure minimal complications such as no endoleaks, migration or rupture and may require additional surgery to correct the above conditions.



- AAA: The Infrarenal aorta has a cross-sectional outer diameter increased by at least 50% compared to its normal diameter or a diameter greater than 30 mm for the infrarenal aorta.

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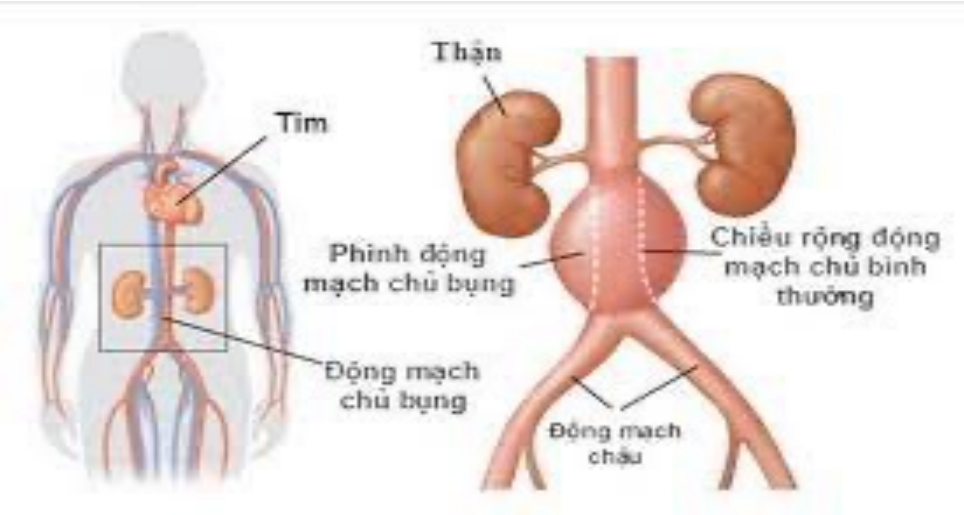


Definition of the elderly:

Viet Nam: According to the provisions of Article 2 of the Law on the Elderly 2009, the Socialist Republic of Vietnam regulates the elderly: Elderly people are Vietnamese citizens aged 60 years or older.

World: Countries around the world have different regulations on the age that is considered an elderly person. Specifically, most European countries consider the elderly to be people aged 65 or older, while in some African countries the age considered to be elderly is only about 50 to 55 years old..

Age and aortic aneurysm

Regarding SEA structure:

- The diameter of the vessel lumen and the entire length of the aorta gradually increase with age in both sexes.
- The thickness of the intima and media in the aortic wall also increases with the advancement of age -> reduces the elasticity of the vessel and is also related to the synthesis of many components inside the aortic wall.
- The number of elastic fibers and smooth muscle cells in the media decreases and the number of collagen fibers increases with increasing age

About kinetic mechanisms

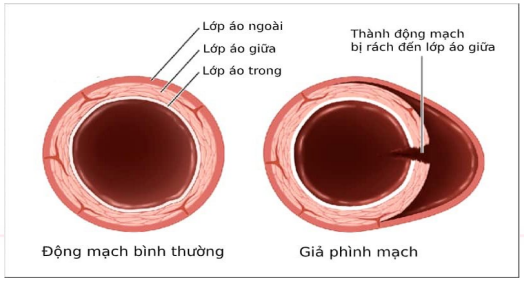
- High blood pressure increases with age, arterial wall pressure increases => aortic aneurysm
- Some side branches of the abdominal aorta are narrowed and blocked due to atherosclerosis => Changes in blood flow and kinetics

About metabolic diseases

- Atherogenesis

-Lipid and calcium deposition in blood

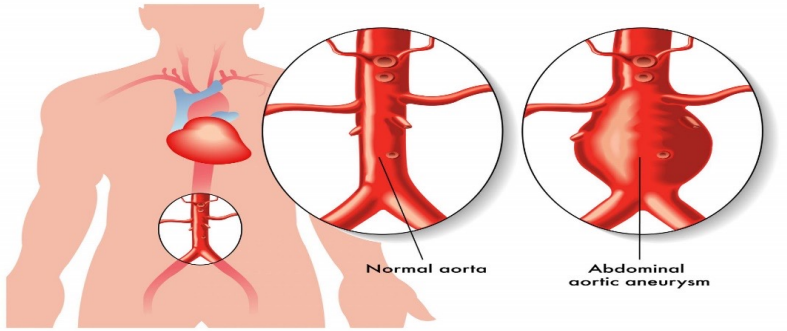
- Diabetes



Indications for intervention and surgery

According to the 2019 European Society of Vascular Surgery (ESVS) guidelines on indications for intervention (with preparation) infrarenal aneurysm:

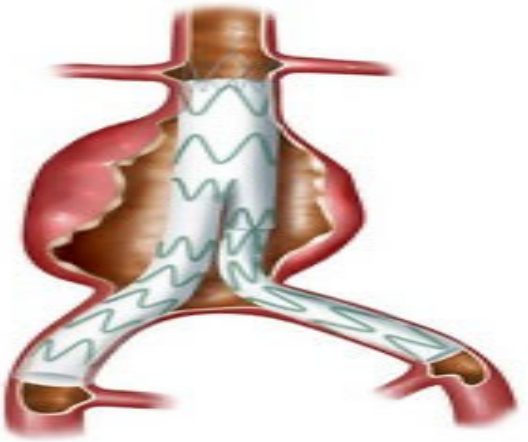
- For men, horizontal diameter ≥ 5.5 cm, for women ≥ 5.0 cm.
- Periodically monitor the aneurysm for growth beyond 5mm/6 months or 1cm/year or when it reaches the above level.
- For saccular aneurysms, the indication is when the diameter is > 3.0 cm.



Wanhainen A VF, Van Herzeele I, et al. Editor's Choice - European Society for Vascular Surgery (ESVS) 2019 Clinical Practice Guidelines on the Management of Abdominal Aorto-iliac Artery Aneurysms. Eur J Vasc Endovasc Surg Off J Eur Soc Vasc Surg. 2019;57(1):8-93

Favorable factors for technical indications for endovascular intervention

+ Diameter across the neck of the aneurysm: best between 14-38mm.
+ Proximal neck length ≥ 15mm (Landing zone)
+ Neck angle < 60□.



Risk score

Table VI, A. Mortality risk scoring scheme for patients undergoing repair of an abdominal aortic aneurysm (AAA)

Parameter	Points
Treatment	
EVAR	0
OAR (infrarenal)	2
OAR (suprarenal)	4
Aneurysm size, mm	
<65	0
≥65	2
Age, years	
≤75	0
>75	1
Gender	
Male	0
Female	1
Comorbidities	
Myocardial disease	1
Cerebrovascular disease	1
Chronic obstructive pulmonary disease	2
Laboratory value	
Creatinine, mg/dL	
<1.5	0
1.5 to <2	2
≥2	2

EVAR, Endovascular aneurysm repair; *OAR*, open aneurysm repair.
From Eslami MH, Rybin D, Doros G, Kalish JA, Farber A; Vascular Study Group of New England. Comparison of a Vascular Study Group of New England risk prediction model with established risk prediction models of in-hospital mortality after elective abdominal aortic aneurysm repair. J Vasc Surg 2015;62:1125-33.e2.

Table VI, B. Risk categorization based on mortality risk scoring scheme (Table VI, *A*) for patients undergoing repair of an abdominal aortic aneurysm (AAA)

Points	Probability of mortality, %	Proposed risk designation
0	0.12	Low-risk group
1	0.20	
2	0.34	
3	0.59	
4	1.00	
5	1.71	Medium-risk group
6	2.91	
7	4.90	
8	8.14	High-risk group
9	13.2	
10	20.75	
11	31.05	Prohibitive high-risk group
12	43.63	
13	57.10	
14	69.59	

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We suggest informing patients contemplating open repair or EVAR of their VQI perioperative mortality risk score.	
Level of recommendation	2 (Weak)
Quality of evidence	C (Low)

SOCIETY FOR VASCULAR SURGERY® DOCUMENT | VOLUME 67, ISSUE 1, P2-77.E2, JANUARY 2018 Download Full Issue

The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm

Elliot L. Chaikof, MD, PhD • Ronald L. Dalman, MD • Mark K. Eskandari, MD • ... Madhukar S. Patel, MD, MBA, ScM • Marc L. Schermerhorn, MD, MPH • Benjamin W. Starnes, MD • Show all authors

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Question

- The question is what is the effectiveness and safety in the treatment of subrenal artery aneurysms in the elderly with endovascular intervention?

Objectives of the study

1, Describe the clinical and paraclinical characteristics of abdominal aortic aneurysm under the renal artery in elderly people undergoing endovascular intervention at Viet Duc Friendship Hospital.

2, Evaluate short- and medium-term results after endovascular intervention in the study patient group.

RESEARCH SUBJECTS AND METHODS

- ***Research subjects:***Patients with subrenal aneurysms aged 60 years or older who have undergone endovascular intervention or classic surgery at the Cardiovascular and Thoracic Center, Viet Duc Friendship Hospital

- Selection criteria: All patients aged 60 years and older received endovascular intervention or surgery for infrarenal aneurysm (including elective and emergency intervention/surgery, successful endovascular intervention or conversion to surgery). Have complete medical records to meet the research objectives. Patients and relatives agreed to participate in the study.

RESEARCH METHODS

- **Research design:Descriptive, longitudinal study**
- **Retrospective sampling (January 2020 to the end of December 2021)**
- **Research time:Period from January 2020 to the end of December 2021**
- **Research location :Cardiovascular and Thoracic Center, Viet Duc Friendship Hospital.**

Results

Number of patients: 42 patients/2 years.

Average age 68.5± 8.9 years. Highest: 89 years old, lowest: 61 years old

Ratio 60-70: 13 patients 70-80: 22 patients
>80: patients

There were 34 male patients and 9 female patients.

Male/female ratio: 3.78/1

RESULTS

Medical history and risk factors:

- **Smoking: 30 patients (71.4%)**
- **Hypertension: 40 patients (95.2%)**
- **Diabetes: 17 patients (40.4%)**
- **Lipid disorders: 35 patients (83.3%)**
- **Coronary artery disease (stenosis ≥50%: 71.4%, severe stenosis ≥70%: 9.5%, stable coronary artery disease after intervention)**
- **Chronic kidney failure: 10 patients (23.8%)**
- **Stroke: 5 patients (11.9%)**
- **COPD: 7 patients (16.7%)**
- **Genetic factors.**
- **Reason for admission: abdominal pain 50%, palpable mass 83.3%, examination detected 16.7%**

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Results

Early results (within 30 days):

Deaths: 0

Conversion to open surgery:

- **1 case of femoral-femoral bypass, right iliac artery plug closure**
- **1 case of thrombus removal from the secondary leg- Variables in endovascular intervention:**

+ Internal iliac artery occlusion: 7 cases, including 2 cases of bilateral internal iliac artery occlusion, one side occluded 1 week before

+ Access balloon angioplasty + stent due to access artery stenosis: 2 cases (self-expanding stent).

+ Intravascular leak immediately after graft placement: yes or no, which type according to the classification above.

+ Treat leaks immediately after removing the graft: balloon dilatation or placing additional grafts.

Early results (within 30 days):

Variables after endovascular intervention

- Bleeding, fluid collection, dissection, pseudoaneurysm, access artery thrombosis: 1 case transferred to emergency surgery
- Early endoleak after 30 days (based on CT scan results), type of fistula and treatment (re-intervention or surgery).
- Acute kidney failure after intervention: 2 cases+ Colon anemia, marrow anemia, kidney anemia: 0 cases
- Lower limb anemia: 1 case
- Stent occlusion, graft infection: 1 case
- Re-intervention rate, reasons for re-intervention: 0 cases
- Conversion to open surgery: to treat complications, there are 2 cases
- Death: 0 cases
- Average hospital stay after intervention 5.8 ± 2.6 days.

CASE

Male76 year old

Diagnosis: AAA/ COPD - Hypertension - Coronary stenosis - Lipid disorder

MsCT:

- Dia AAA 70mm
- The neck of the aneurysm is suitable for vascular intervention

Estimated Mortality Risk Score

- Intervention: 8 points Mortality: 8.14%
- Surgery: 10 points Mortality: 20.75%

=> High risk during surgery, high perioperative mortality rate=> Successful endovascular intervention

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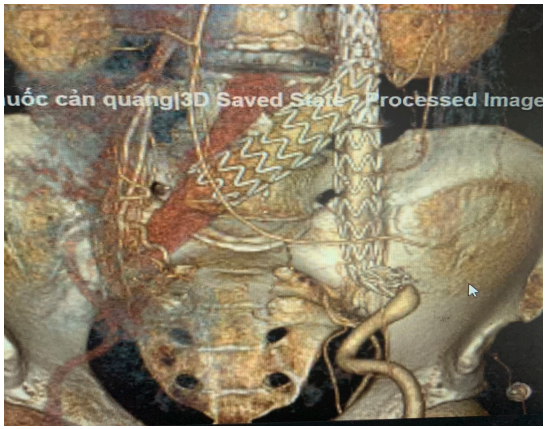
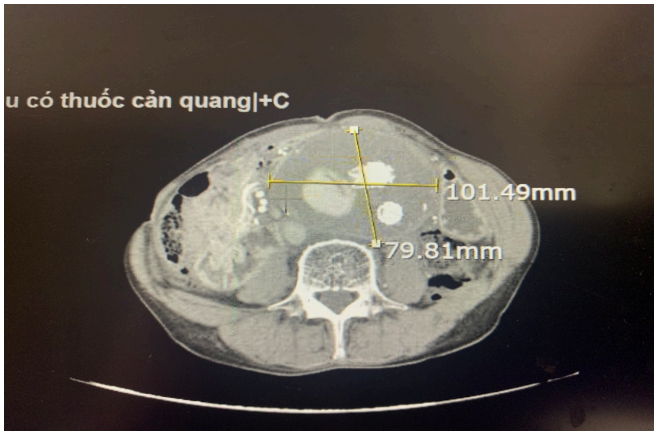
CASE

Follow-up examination after 1 month, 3 months, 6 months, 1 year => ok
Patients self-examine at lower level hospitals winthin 2 years later
Patient was examined again because he felt a large bulge in his abdomen at Vietduc hospital
Recheck MsCT => Endoleak Ib, large abdominal aortic aneurysm >100mm. Severe stenosis of the left external iliac artery just behind the stent graft.





Case

Intervention

- More 1 stent graft the right iliac artery
- Stenting left iliac artery

CASES

Result

BỆNH VIỆN HỮU NGHỊ VIỆT ĐỨC
UNIVERSITY HOSPITAL

tim mạch lồng ngực
Bệnh viện Việt Đức

Thank you for your attention !

ATCSA2023
Ho Chi Minh city, Vietnam