CHẤN THƯƠNG ĐỘNG MẠCH CẢNH: NHÂN MỘT CA HIẾM GẶP VÀ TỔNG QUAN Y VĂN

Ths.Bs. ĐỖ TRUNG DŨNG
TK.PT TIM MẠCH-LỒNG NGỰC
BV ĐA KHOA THỐNG NHẤT ĐỒNG NAI

NỘI DUNG

1. TRÌNH BÀY CA BỆNH
2. TỔNG QUAN Y VĂN
3. KẾT LUẬN

TRÌNH BÀY CA BỆNH

HÀNH CHÍNH:

BN Võ Văn Tr. nam, 22 tuổi, nhập viện 20g3ph ngày 16.05.2020

Lý do: Vết thương cổ phải do bò húc

BỆNH SỬ:

BN đi trên xe máy trên đường tránh đàn bò, bị bò húc vào vùng cổ phải, người đi đường đưa vào viện.

TIỀN CĂN:

Khỏe mạnh

THĂM KHÁM:

Bệnh nhân tỉnh, hốt hoảng mất giọng nói, máu chảy ra từ mũi miệng.

Hình ảnh cổ đầy, vết thương cổ phải dài 6cm chảy nhiều máu đỏ tươi.

M: 94 l/ph

HA: 140/90 mmHg

Sờ khí dưới da lép bép vùng cổ

Rung miêu cổ trái

Âm thổi vùng cổ trái lan lên vùng sau tai trái

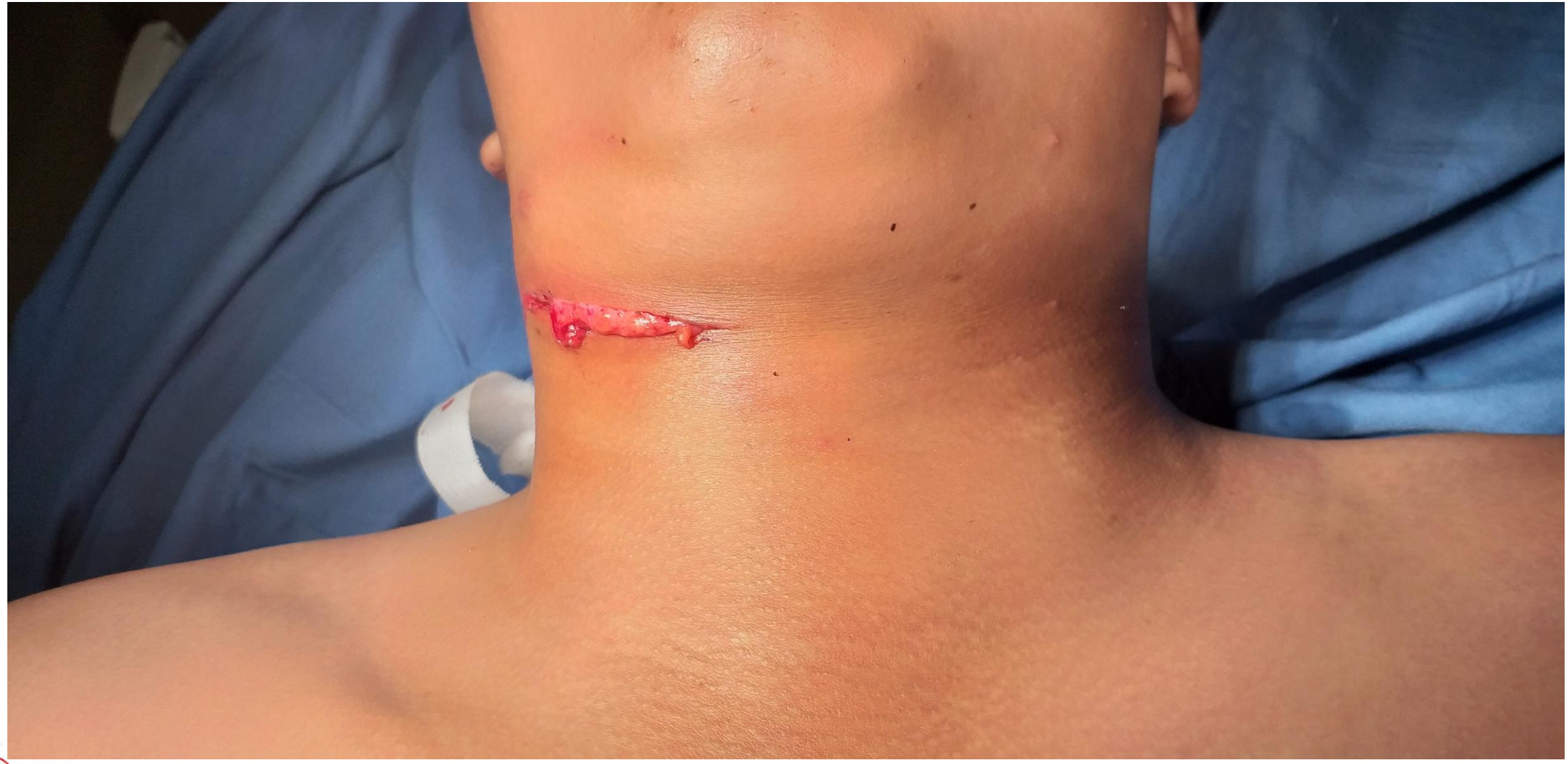
Tứ chi vận động được, sức cơ đều

Các cơ quan khác chưa thấy bất thường

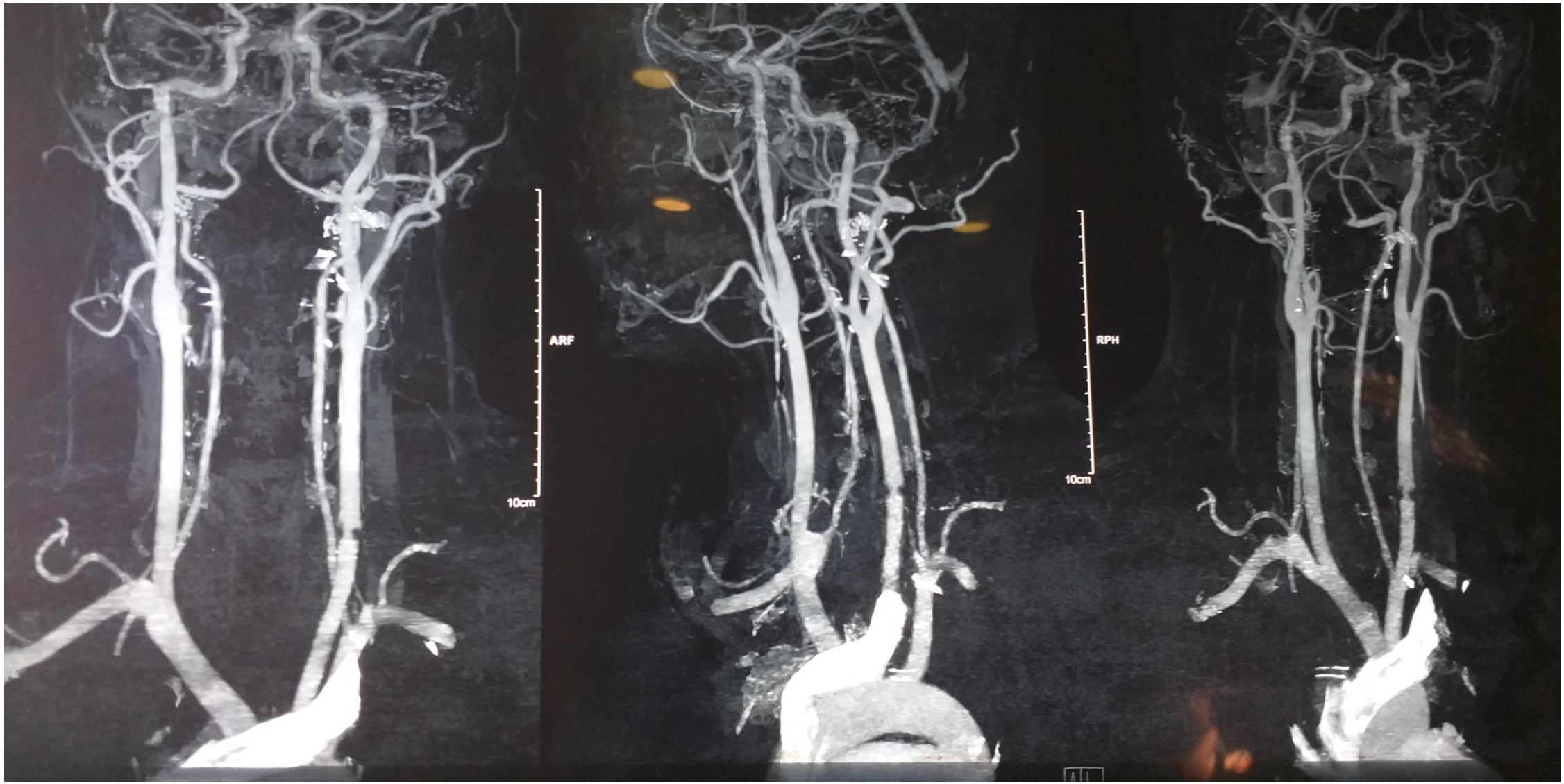
CHẨN ĐOÁN SƠ BỘ:

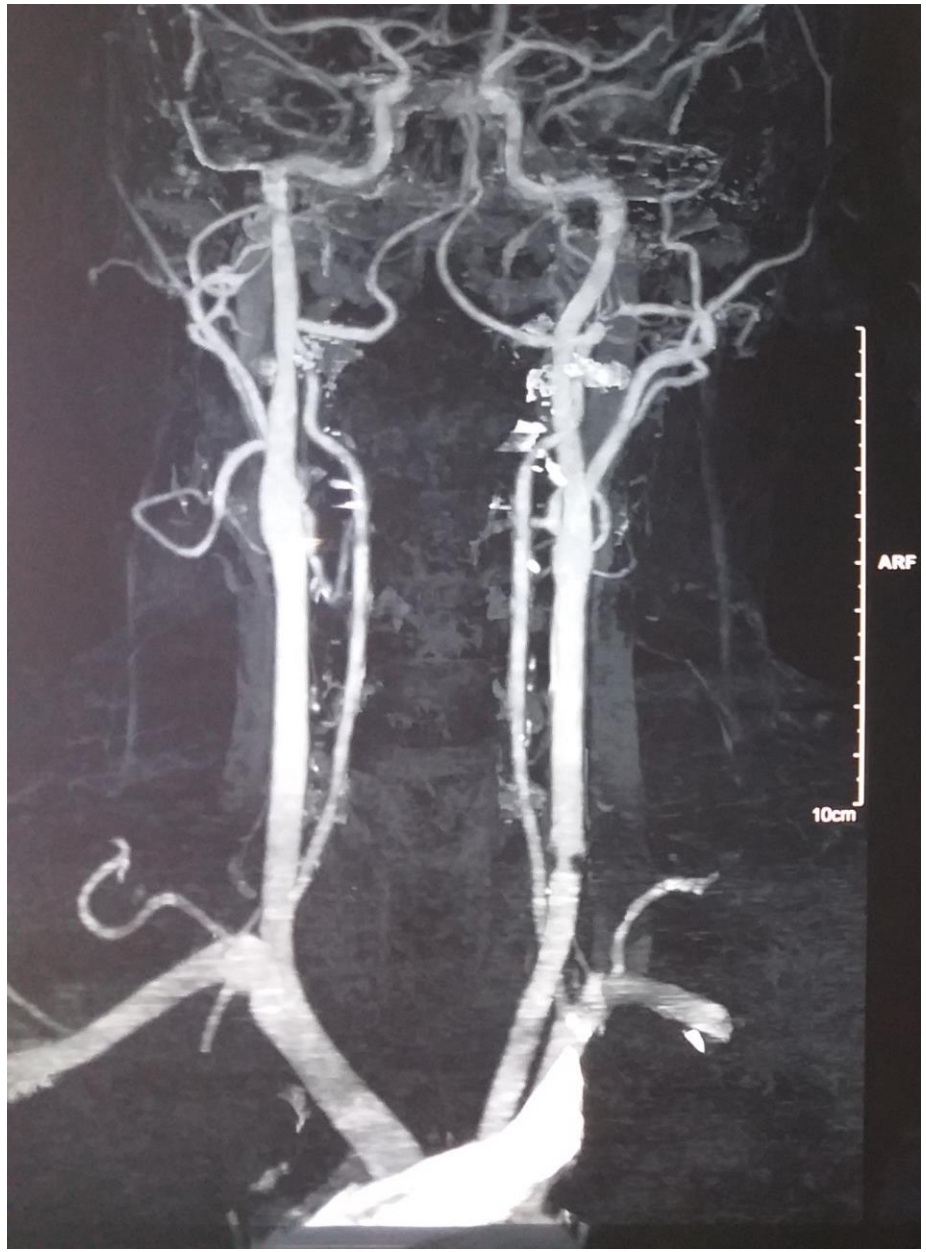
Vết thương phức tạp cổ phải, tổn thương thanh khí quản, theo dõi tổn thương mạch máu vùng cổ

Hình ảnh lâm sàng



CTA vùng cổ



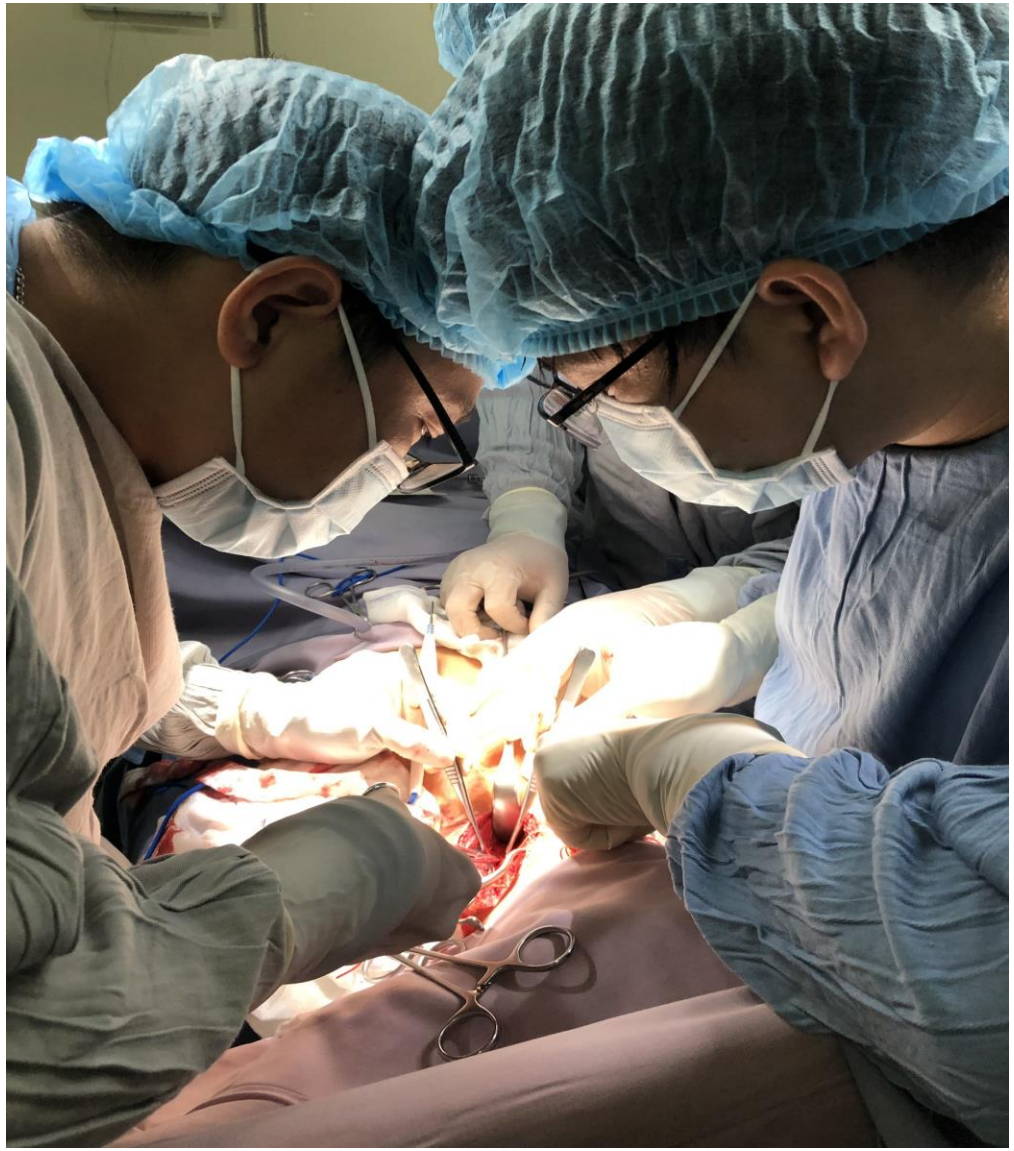

ARF
10cm

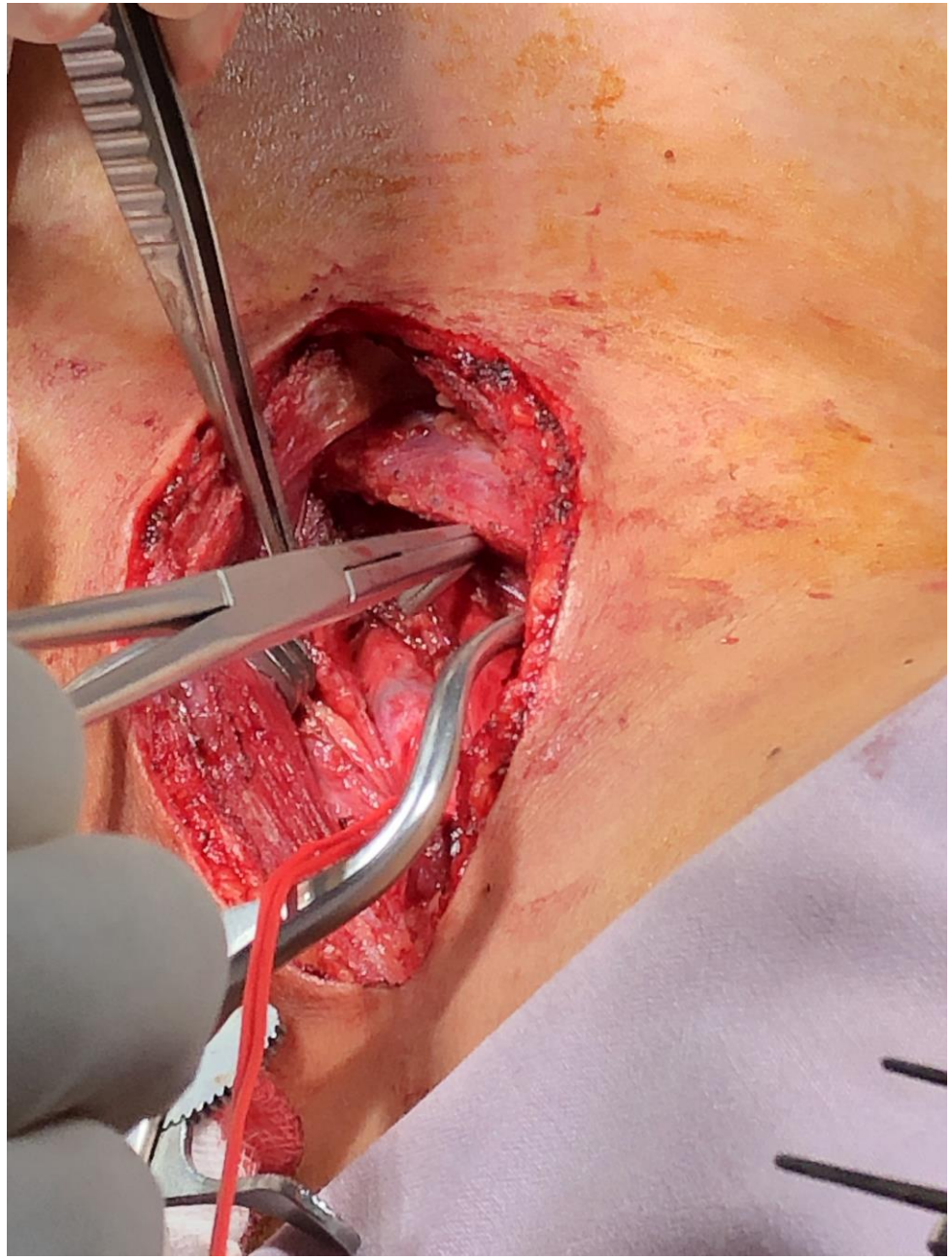
Chẩn đoán xác định

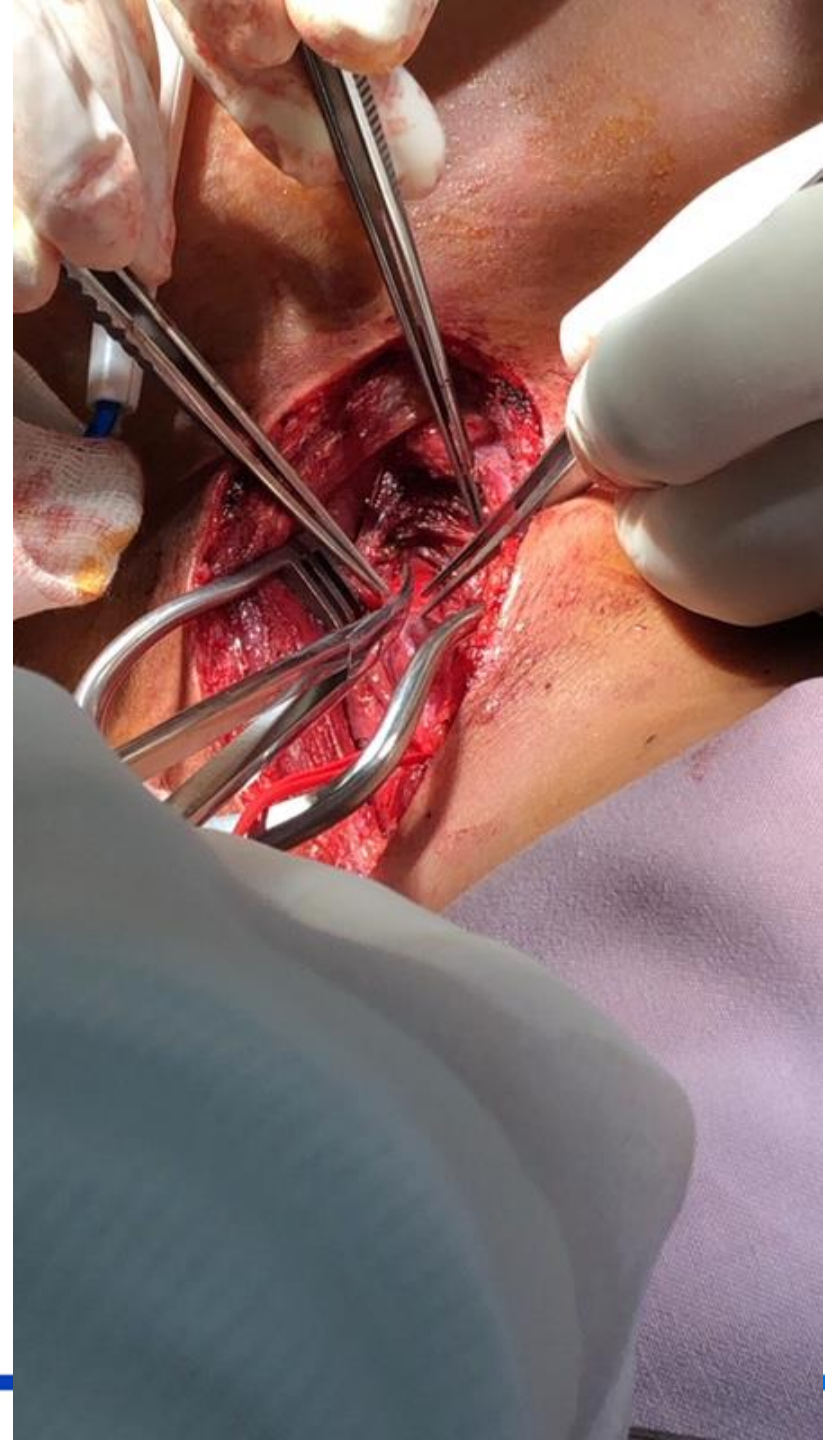
Vết thương phức tạp cổ phải gây vỡ thanh quản

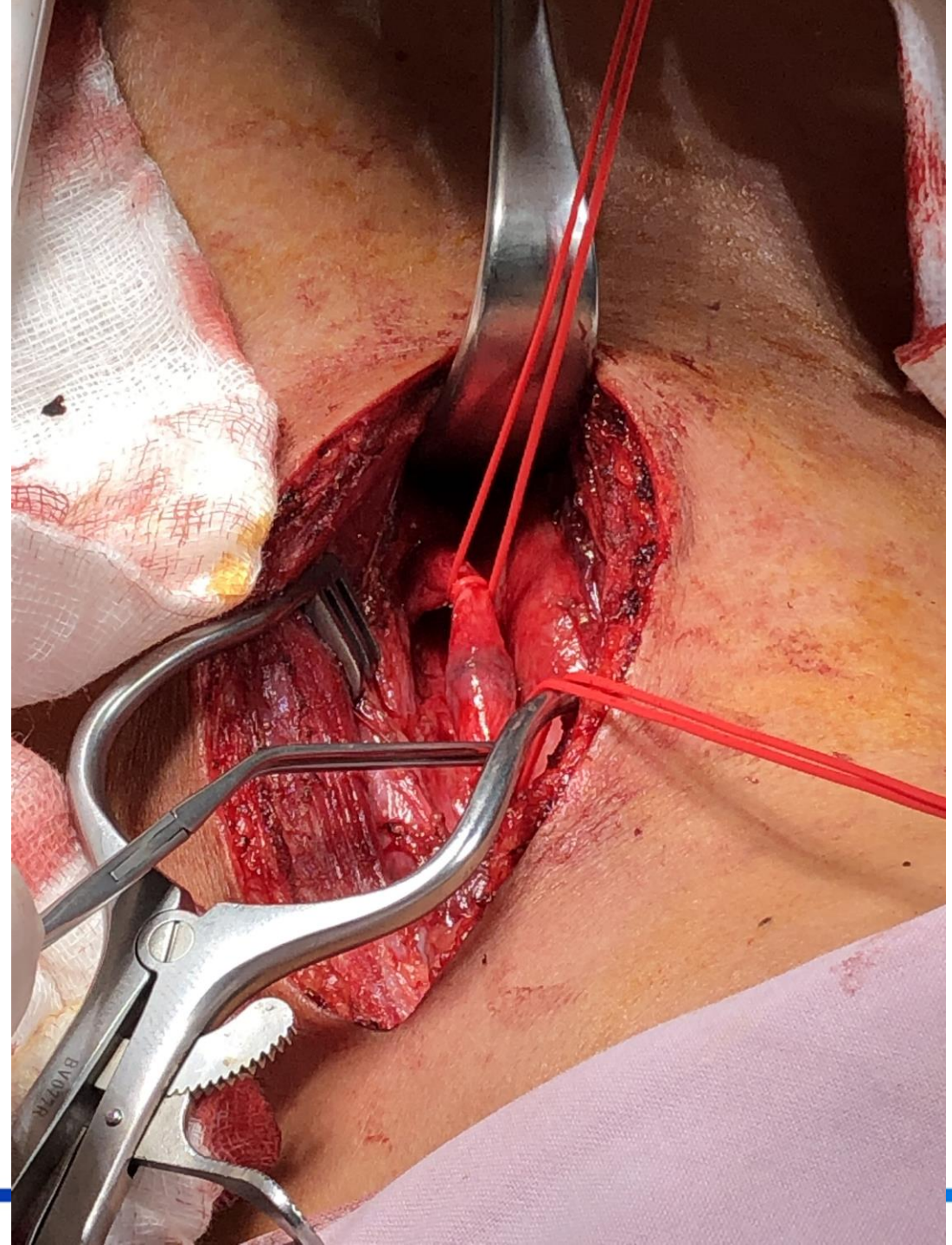
Chấn thương động mạch cảnh chung trái gây hẹp nặng

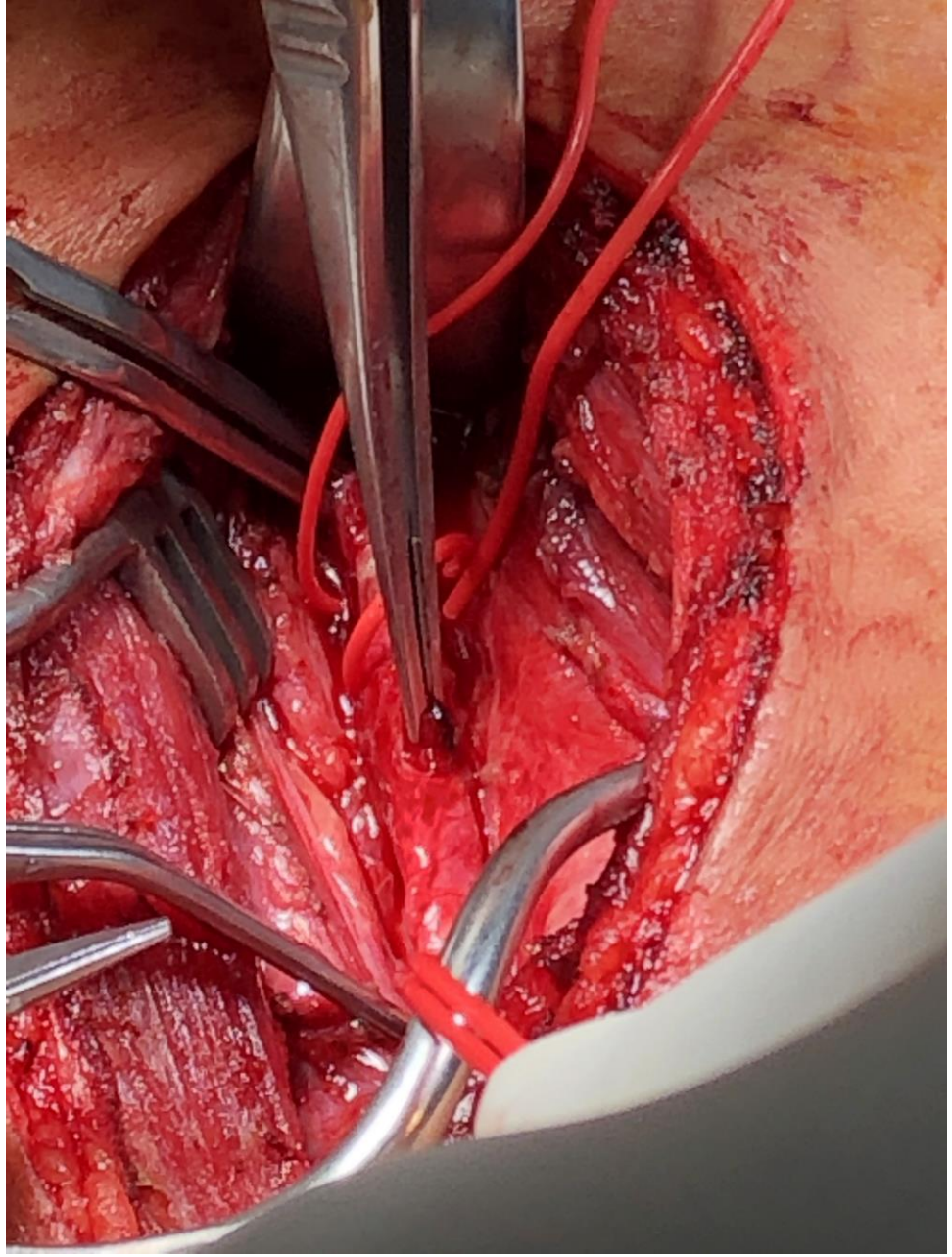
Phẫu thuật

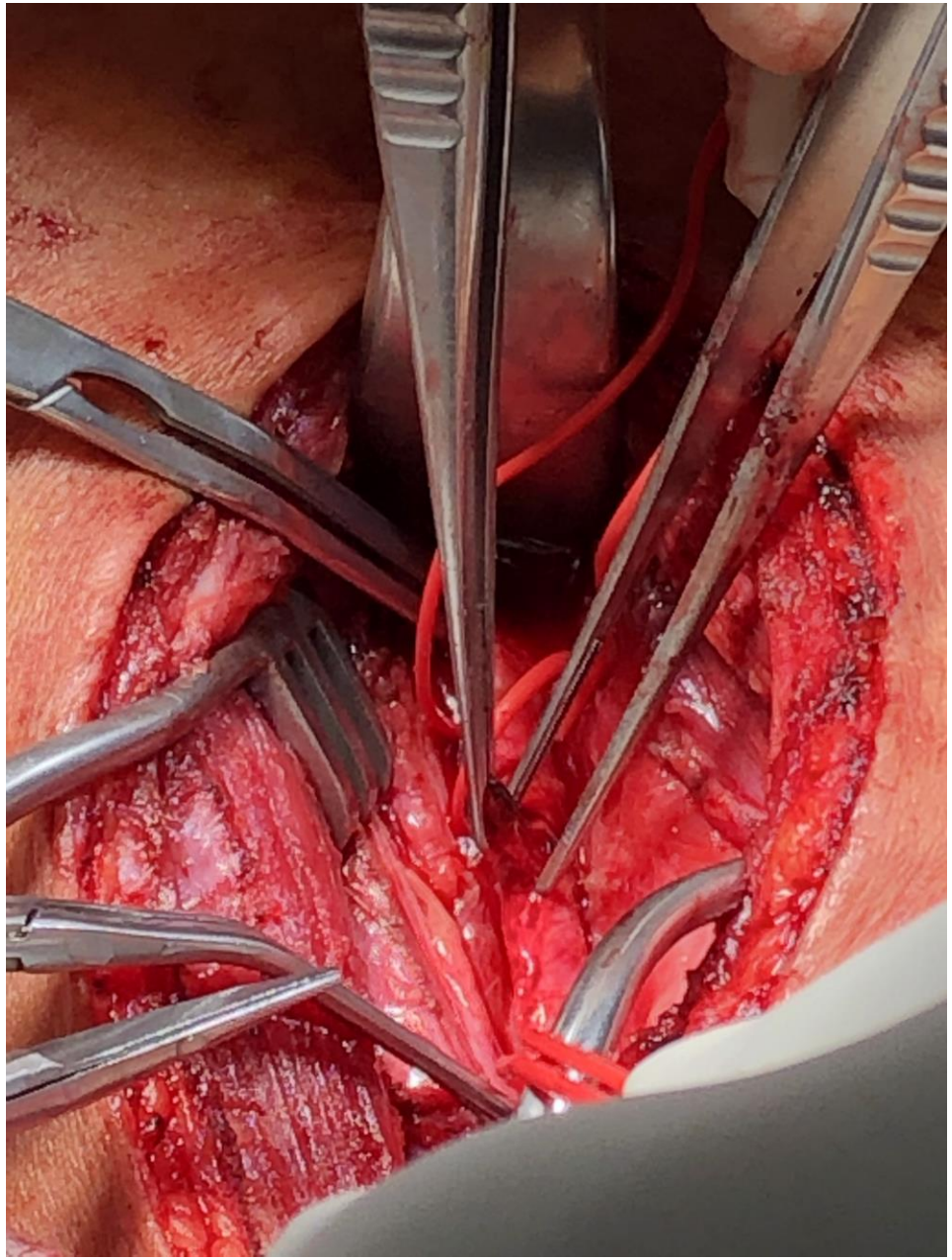


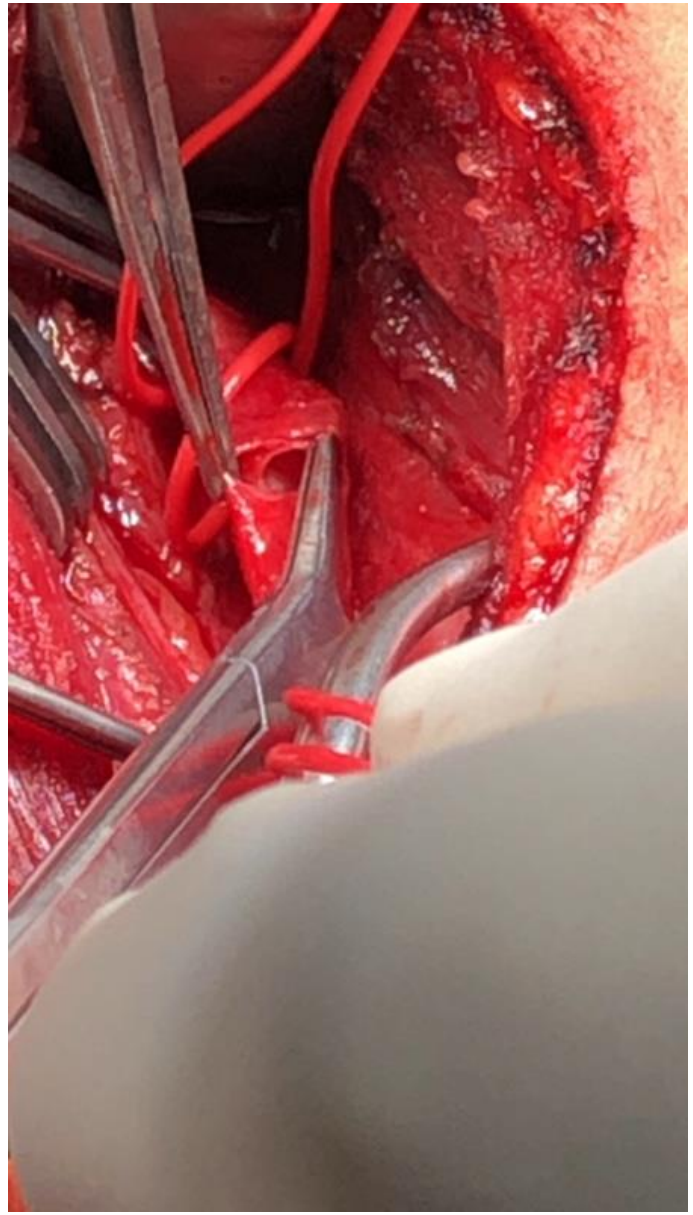


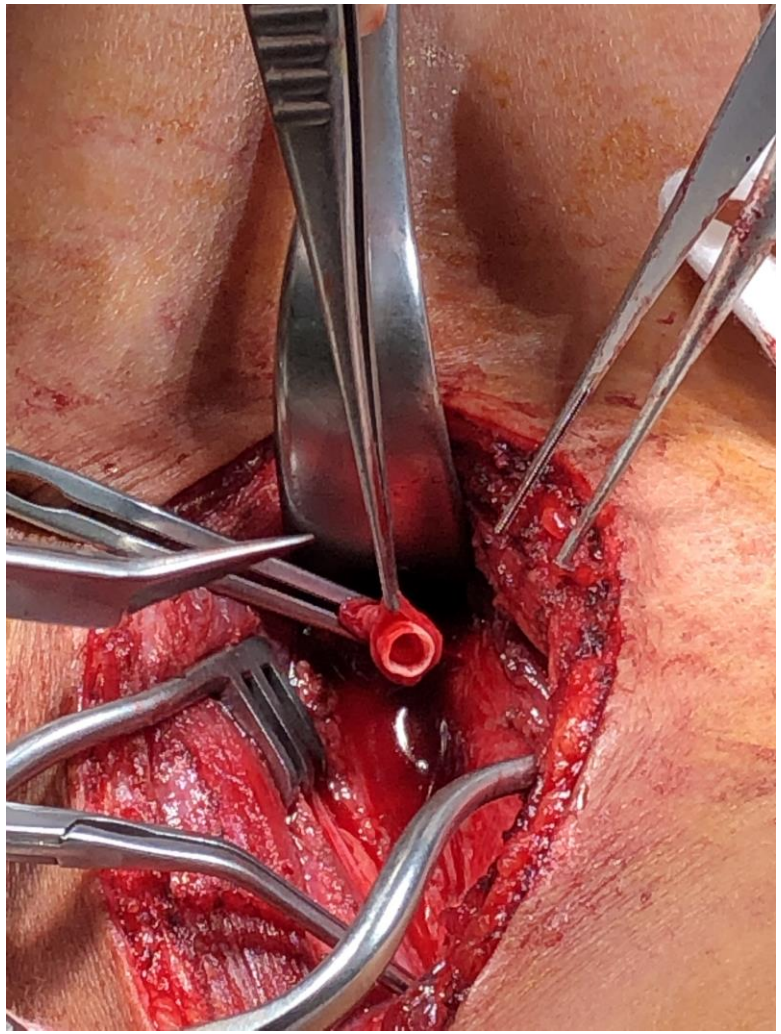


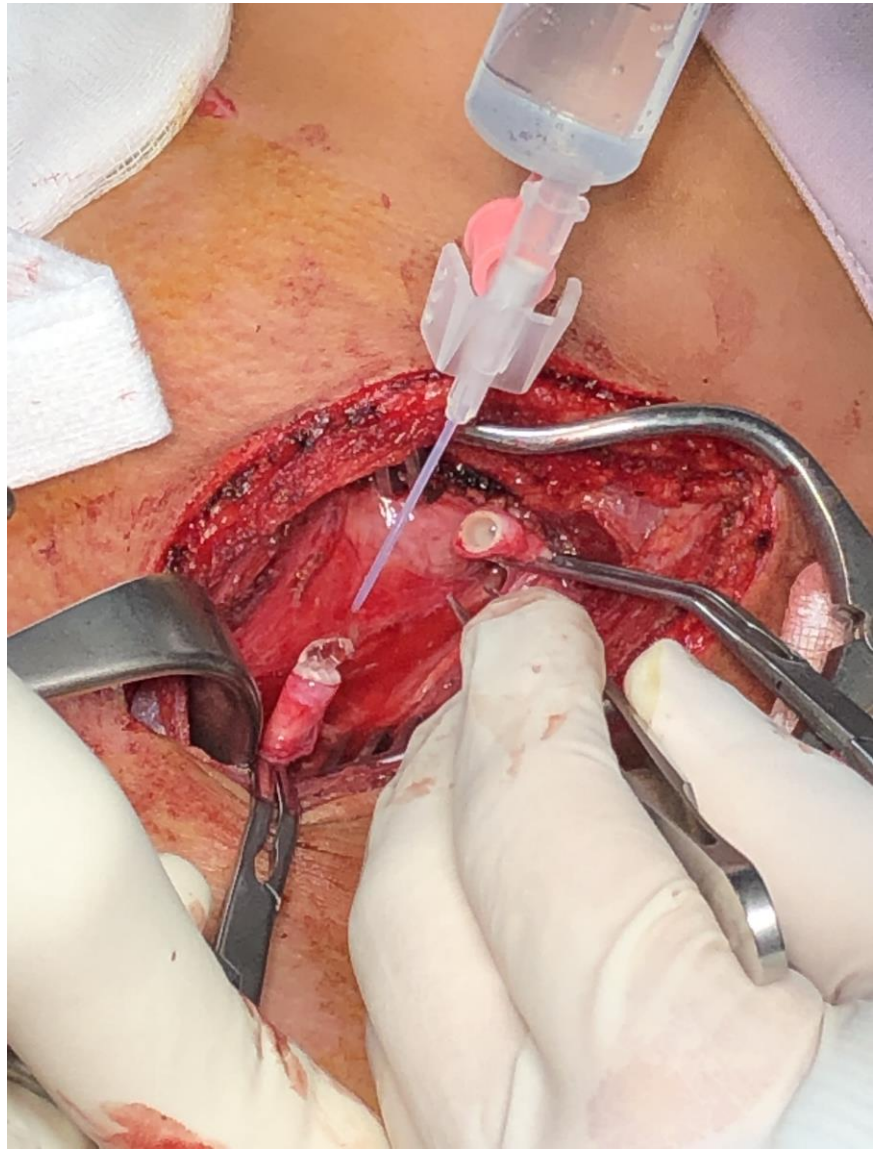


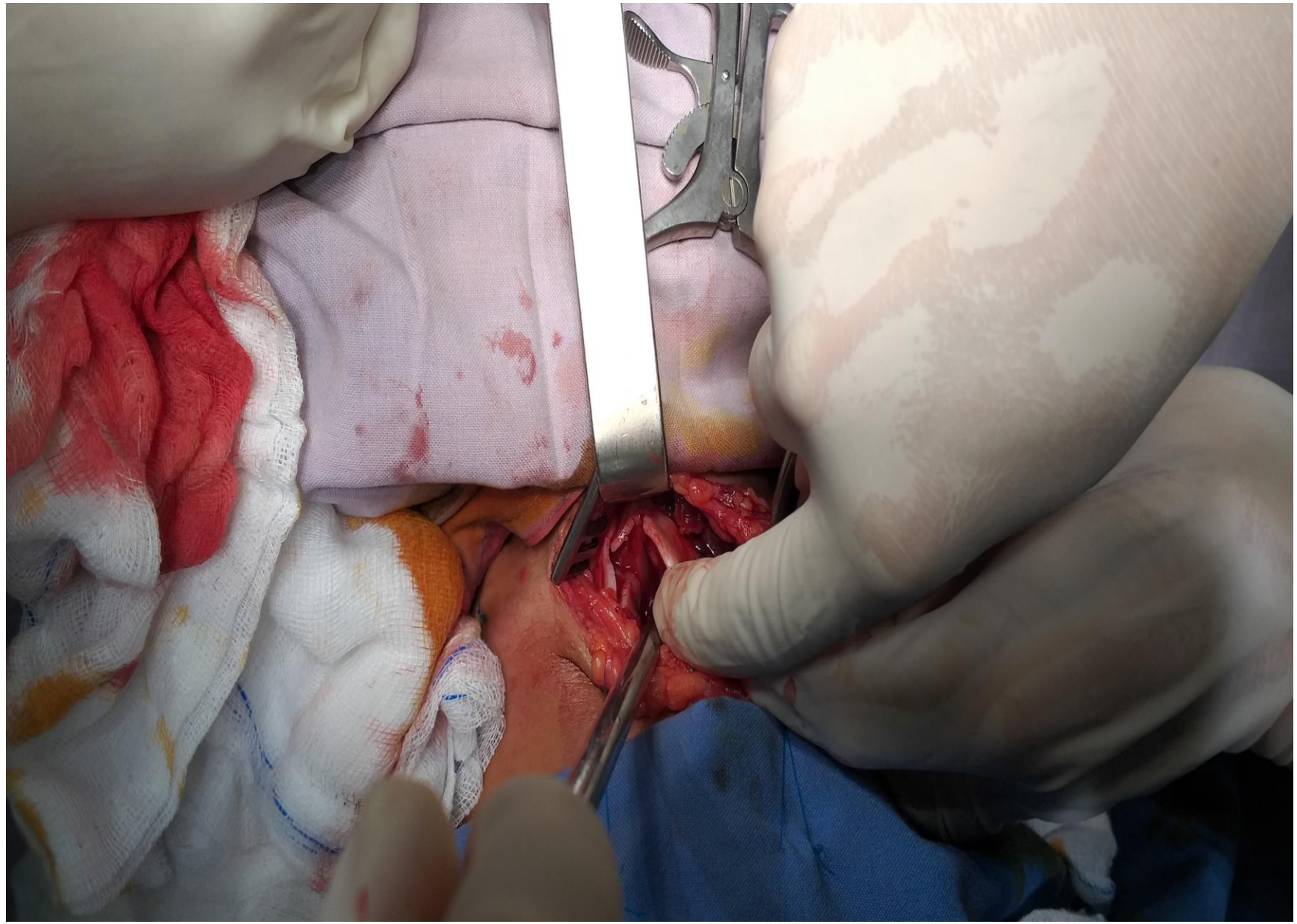












Sau mổ


DongNai

TỔNG QUAN Y VĂN

Scope of the Problem:

Blunt injury to the carotid or vertebral vessels (blunt cerebrovascular injury – BCVI) is diagnosed in approximately 1/1000 (0.1%) patients hospitalized for trauma in the United States.[1] However the vast majority of these injuries are diagnosed following the development of symptoms secondary to central nervous system ischemia with a resultant neurologic morbidity of up to 80% and associated mortality of up to 40%.[2] When asymptomatic patients are screened for BCVI the incidence rises to 1% of all blunt trauma patients.[3] Key issues that need to be addressed in the diagnosis and management of BCVI include what population (if any) merits screening for asymptomatic injury, what screening modality is best, what is the appropriate treatment for BCVI (both symptomatic and asymptomatic) and what constitutes appropriate follow-up for these injuries.

Cơ chế: gập-duỗi-xoay

Rách dưới nội mạc

→Huyết khối thành, huyết khối, tắc mạch

→Giả phình

1-2% chấn thương nhập viện

9% chấn thương đầu nặng

Background

Blunt cerebrovascular injury (BCVI) is a non-penetrating injury to the carotid and/or vertebral arteries. The pathological mechanism is thought to be stretching or impingement of the vessel walls as the head and neck is forcefully moved in flexion, extension or rotation. This causes intimal tear with exposure of subintimal layers to the blood flow and consequently thrombus formation, wall hematoma and even lumen occlusion. In some instances this process develops into a pseudoaneurysm [1]. BCVI has been given considerable attention in the literature for the past 30 years [2–5]. It was earlier considered to be a very rare injury but recent publications show an incidence of 1–2% in the in-hospital trauma population and 9% in patients with severe head injury [6, 7]. BCVI is clearly associated with severe facial injuries and fractures of the skull base and cervical spine [8–15]. Thrombus formation at the site of an intimal tear may occlude the vessel or shed an emboli to a more

Table 2 Overview of clinical recommendations, strength, level of evidence and scientific rationale

Clinical question	Recommendation	Strength of recommendation	Level of evidence	Rationale (Benefits and harms)
What part of the trauma population should be screened for BCVI?	Apply expanded Denver screening criteria	Strong	Low	A documented screening tool ensures focus on the condition. Possible danger of overtriage and unnecessary use of imaging.
Which radiological method should be applied for screening?	CTA has acceptable specificity and sensitivity. DSA remains gold standard	Strong	Moderate	DSA is time consuming, invasive with potential complications and often not available 24–7. CTA is fast and available with lower complication risk. CTA has higher radiation exposure with a risk of false positive findings.
How should BCVI be treated?	Early treatment with either LMWH or AP medication	Strong	Low	Uncertainty of treatment effect. Studies show that early treatment is safe. Risk is worsening of existing hemorrhage.
	Continue treatment with LMWH or AP for at least 3 months	Strong	Low	Long term AP treatment is generally safe, but may cause side effects such as peptic ulcer.
	Pseudoaneurysm or high-grade vessel injury may be considered for endovascular treatment	Conditional	Low	May prevent new or recurrent stroke, but uncertainty of treatment effect or stent patency. Double platelet-inhibitors increases risk of hemorrhage in trauma patients.
How should patients with BCVI be handled over time?	Perform re-imaging at 7 days and 3 months.	Conditional	Low	Repeat imaging can confirm or discard the diagnosis of BCVI. Risk is radiation exposure.

BCVI blunt cerebrovascular injury, *CTA* CT angiography, *DSA* digital subtraction angiography, *LMWH* low molecular weight heparin, *AP* anti-platelet

Table 3 The expanded Denver screening criteria for BCVI. CT angiography is indicated if one or more of the criteria are present

Signs/symptoms of BCVI
Arterial hemorrhage from neck/nose/mouth
Cervical bruit in patients < 50 years
Expanding cervical hematoma
Focal neurological deficit
Neurological exam incongruous with head CT findings
Stroke on secondary CT scan
Risk factors for BVCI *(High-energy transfer mechanism with):*
Le Fort II or III
Mandible fracture
Complex skull fracture/basilar skull fracture/occipital condyle fracture
Severe traumatic brain injury (TBI) with GCS < 6
Cervical spine fracture, subluxation or ligamentous injury at any level
Near hanging with anoxic brain injury
Seat belt abrasion with significant swelling, pain or altered mental status
TBI with thoracic injury
Scalp degloving
Thoracic vascular injury
Blunt cardiac rupture
Upper rib fracture

From Geddes et al.: Expanded screening criteria for blunt cerebrovascular injury: A bigger impact than anticipated (Geddes et al., 2016)

Table 2: Boston Criteria[17] for BCVI

First Tier[a]	Second Tier[b]
Skull base fractures: petrous and basilar fractures	DAI
Any cervical spine fractures	Complex facial fractures with midface instability
Cervical spine injury (cord, vertebral body, or ligaments)	Combined significant head and chest trauma
Soft-tissue injury to anterior neck with swelling/ecchymosis/ hematoma/or bruit	Near-hanging
Significant neurologic deficit: lateralizing neurologic deficit, TIA, Horner syndrome	Seat belt abrasions on neck
Evidence of brain infarct on CT	Other unexplained neurologic deficits: vertigo, tinnitus, or GCS ≤6

Note:—DAI indicates diffuse axonal injury; GCS, Glasgow Coma Scale.

[a] First tier criteria: CTA screening on presentation.

[b] Second tier criteria: CTA screening within 24–48 hours of presentation.

Table 4 The Biffl injury grading scale for BCVI

Biffl injury grade	Angiograhic characteristics
I	Luminal irregularity or dissection with < 25% luminal narrowing
II	Dissection or intramural hematoma with ≥25% luminal narrowing
III	Pseudoaneurysm
IV	Occlusion
V	Transection with free extravasation

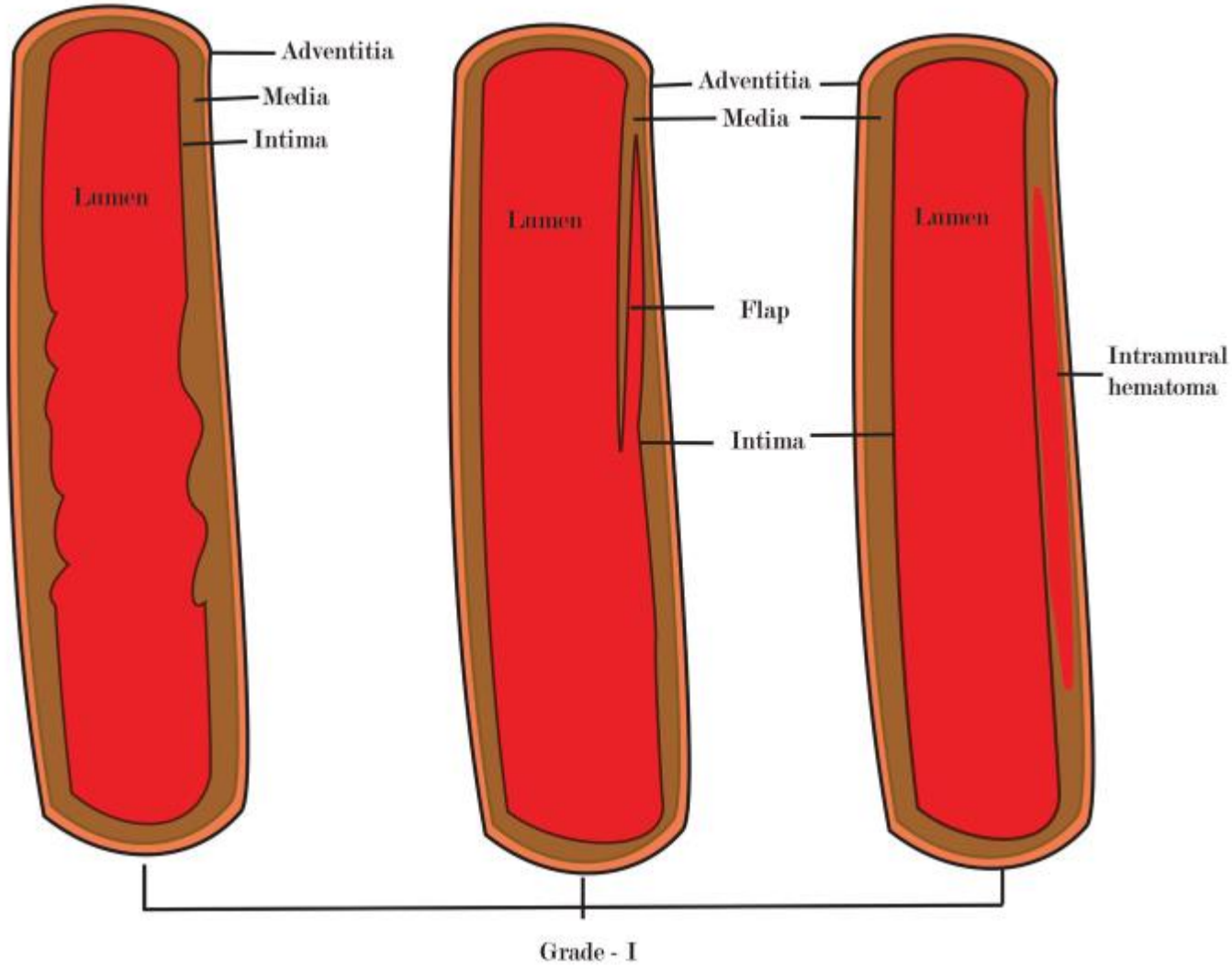
From Biffl et al.: Blunt carotid arterial injuries: implications of a new grading scale (Biffl et al. 1999)

Table 4: Denver grading system, corresponding CTA findings, and grade-based stroke incidence

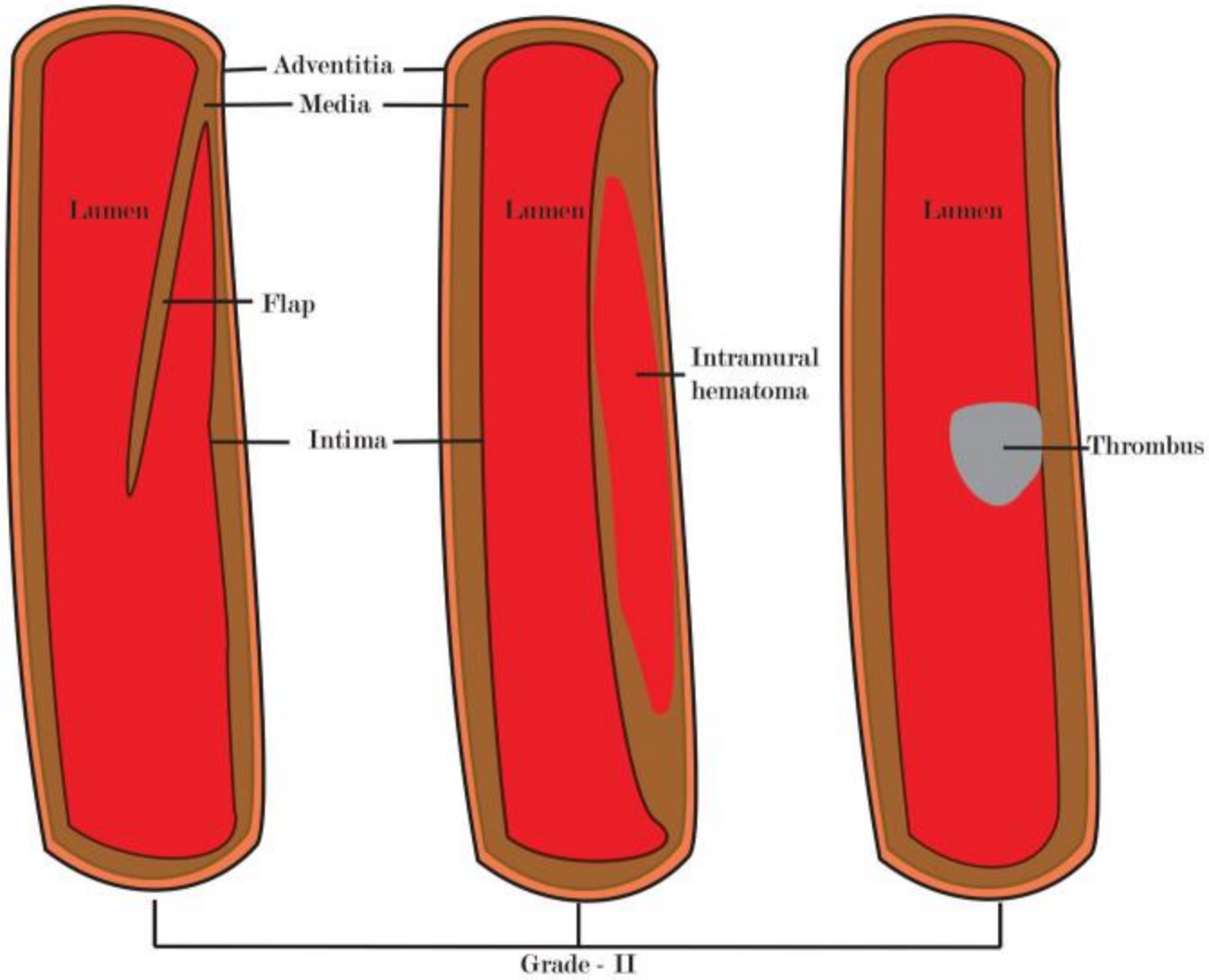
Grade of Injury	Denver Grading System[31]	CTA Findings	Stroke Incidence (%)[9,48] (CAI/VAI)
I	Irregularity of vessel wall	Nonstenotic luminal irregularity	
	Dissection or IMH with <25% narrowing	Intimal flap or wall thickening with <25% stenosis	3/6
II	Intraluminal thrombus	Luminal hypodensity	
	Dissection or IMH with >25% narrowing	Intimal flap or wall thickening with >25% stenosis	14/38
III	Pseudoaneurysm	Eccentric contrast-filled outpouching limited by periarterial tissue	26/27
IV	Occlusion	Lack of any intraluminal enhancement Carotid occlusions: abrupt or tapered Vertebral occlusion: usually abrupt	50/28
V	Transection	Irregular extravascular collection of contrast, not limited by periarterial tissue Increases in density on delayed images, if obtained	100/100

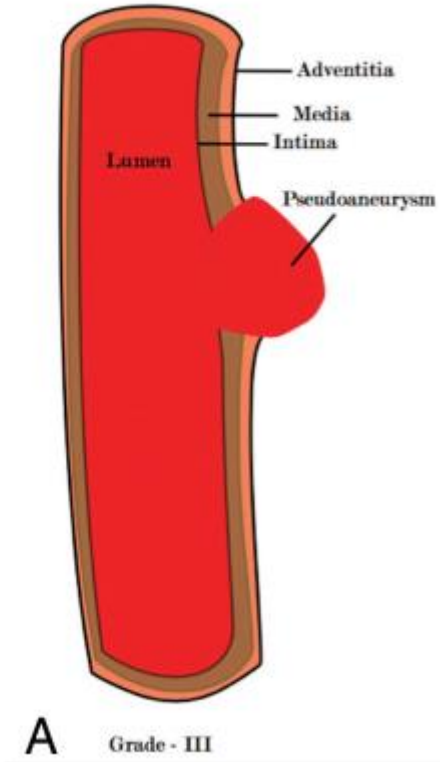
Note:—CAI indicates carotid artery injury; VAI, vertebral artery injury; IMH, intramural hematoma.

Grade I

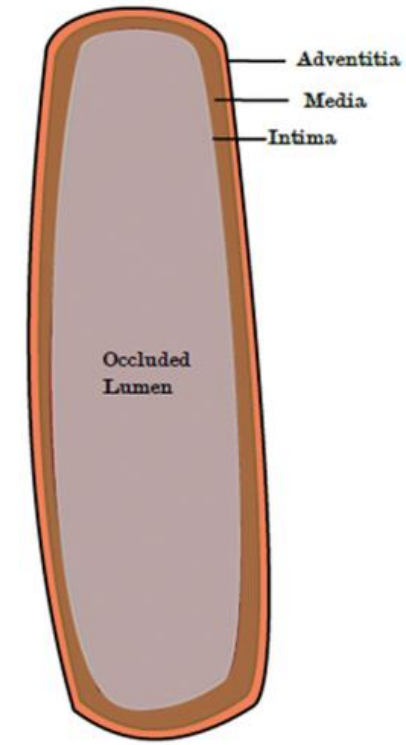

Adventitia
Media
Intima
Lumen
Adventitia
Media
Lumen
Flap
Intima
Lumen
Intramural
hematoma
Grade - I

Grade II

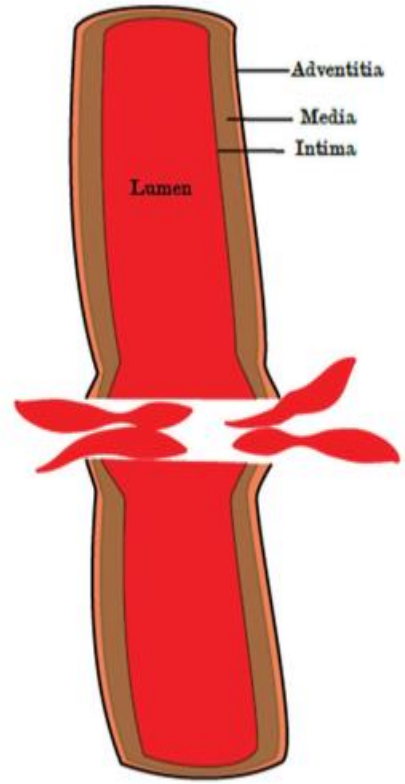

Adventitia
Media
Lumen
Lumen
Lumen
Flap
Intramural
hematoma
Intima
Thrombus
Grade - II



A Grade - III



A Grade - IV



A Grade - V

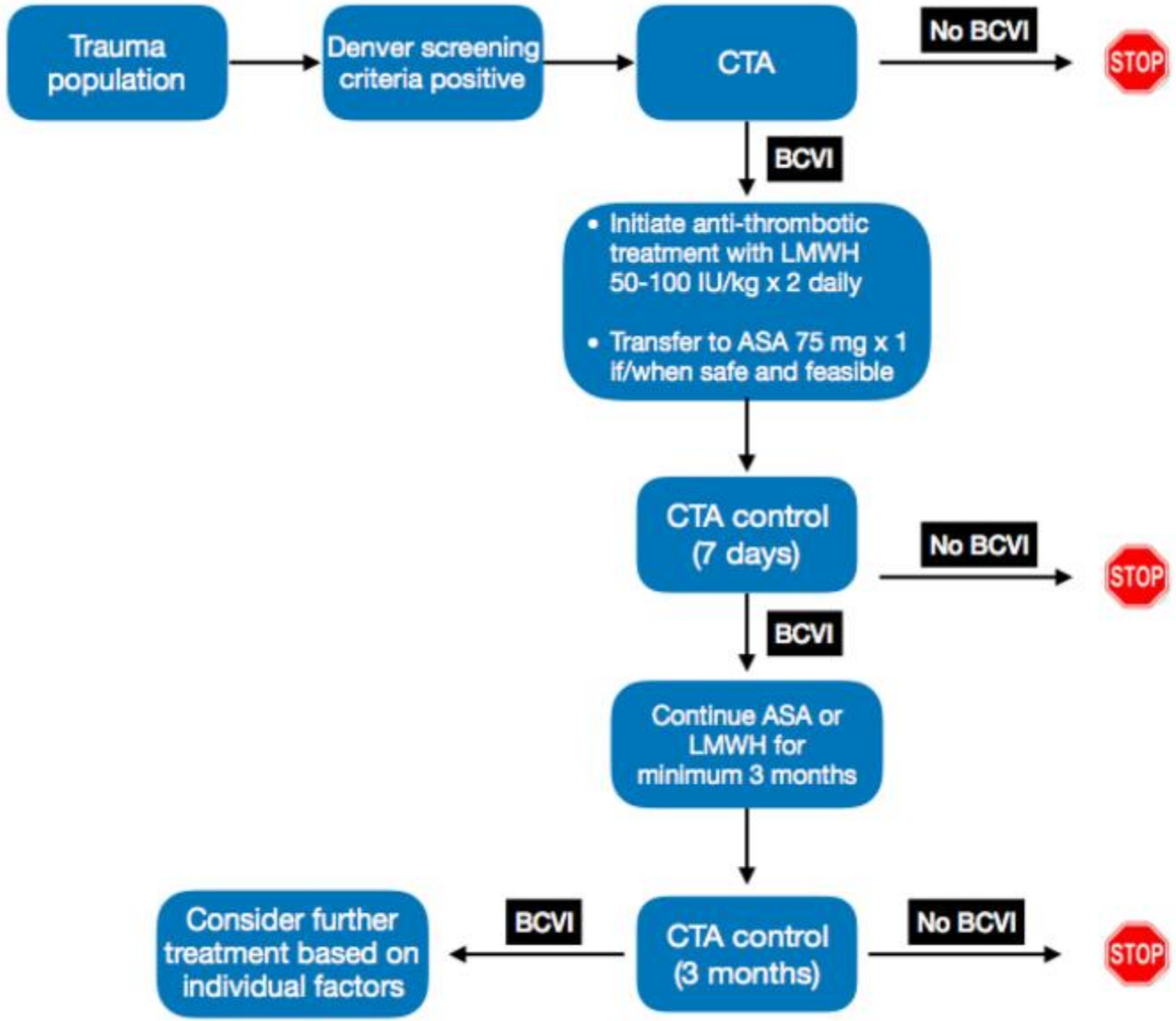


Fig. 2 Flow-diagram summarizing the current guidelines for screening, treatment and followup of patients with BCVI

Evaluation and management of blunt cerebrovascular injury: A practice management guideline from the Eastern Association for the Surgery of Trauma

Dennis Y. Kim, MD, Walter Biffl, MD, Faran Bokhari, MD, Scott Brakenridge, MD, Edward Chao, MD, Jeffrey A. Claridge, MD, MS, Douglas Fraser, MD, Randeep Jawa, MD, George Kasotakis, MD, MPH, Andy Kerwin, MD, Uzer Khan, MD, Stan Kurek, MD, David Plurad, MD, Bryce R.H. Robinson, MD, MS, Nicole Stassen, MD, Ron Tesoriero, MD, Brian Yorkgitis, DO, *and* **John J. Como, MD, MPH***, Torrance, California*

TABLE 3. Summary of Recommendations

Question	Recommendation
PICO 1	In adult patients with blunt polytrauma, we recommend using a screening protocol to detect BCVI.
PICO 2	In adult patients with high-risk cervical spine injuries, we recommend performing screening CTA to detect BCVI. In adult patients with low-risk cervical spine injuries, we conditionally recommend performing screening CTA to detect BCVI.
PICO 3	In adult patients with BCVI, we recommend using ATT to prevent both stroke and mortality.
PICO 4	In adult patients with Grade II or III BCVIs, we recommend against the use of routine endovascular stenting as an adjunct to ATT to decrease the risk of stroke.

Table 5: Grade-based treatment, follow-up, and suggested management of BCVI

Injury Grade	Initial Treatment	Surgical or Endovascular Treatment	Follow-Up[a]	Long-Term Treatment
I	Antithrombotic therapy[b] (preferably unfractionated heparin) or observation (rarely used)	Not needed	7–10 days, then 3–6 mo until healed	Antiplatelet therapy until healing
II	Antithrombotic therapy[b]	Needed if neurologic symptoms or progression of dissection	7–10 days, then 3–6 mo (until healed or definitive management)	Long-term antiplatelet therapy until healing or definitive interventional or surgical treatment
III		Needed if symptomatic or size >1 cm	7–10 days and then 3–6 mo or based on symptoms	Long-term antiplatelet therapy until healing or definitive treatment
IV		Typically not beneficial	Based on symptoms	Life-long antiplatelets
V	Direct pressure on actively bleeding area	Emergent intervention/surgery	Based on symptoms	No data (symptomatic)

[a] Follow-up for asymptomatic carotid cavernous injury is 3–4 weeks.

[b] Unless contraindicated.

Kết luận

1. Chấn thương mạch máu nuôi não cần được chú ý trong các ca chấn thương nặng, vùng đầu cổ
2. Vai trò của thuốc chống đông quan trọng
3. Cần theo dõi ở các nơi có thể phẫu thuật mạch máu
4. Vai trò của can thiệp mạch cần thêm các nghiên cứu


CHÂN THÀNH CẢM ƠN
QUÝ ĐỒNG NGHIỆP