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Minor amputation immediately after endovascular revascularization is useful therapeutic option in treatment of critical limb ischemia

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COI disclosure

Disclosure

Speaker name: Taku Kato

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I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest



Significance of “limb salvage” in CLI patients

- 1 Walking salvage, ADL maintenance
- 2 QOL improvement
- 3 Avoidance of general anesthesia
- 4 Patient's mental aspect
- 5 Reduction of caregiver's burden

If we can avoid major amputation, the CLI patient can gain various benefits.



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Limb salvage of Rutherford 5/6 CLI patients

(Small wound)

1 We can expect cure by only revascularization

(Infectious wound, osteomyelitis, major tissue loss)

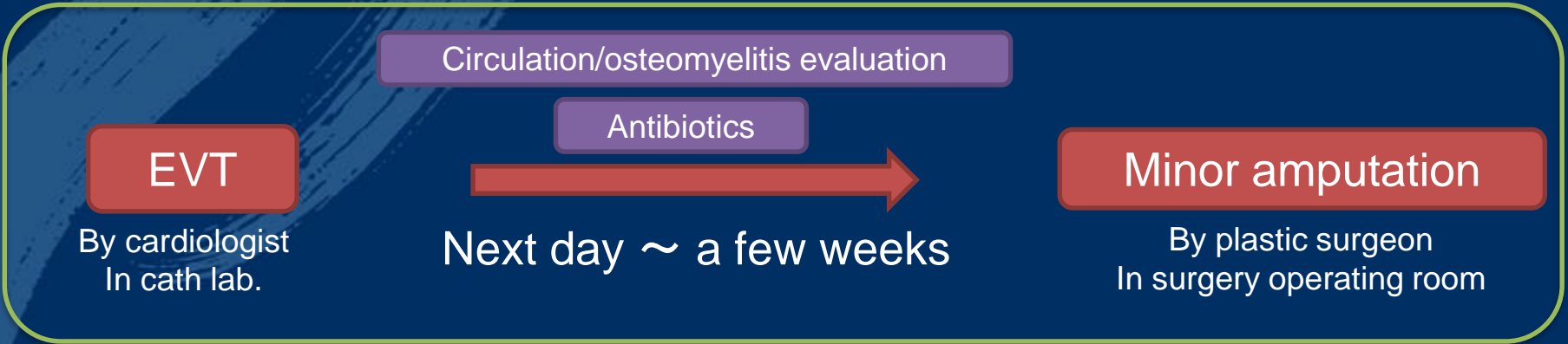
2 We need debridement or minor amputation after revascularization

We often need debridement/amputation as well as revascularization,
Especially in CLI patients with major tissue loss, and/or infection.

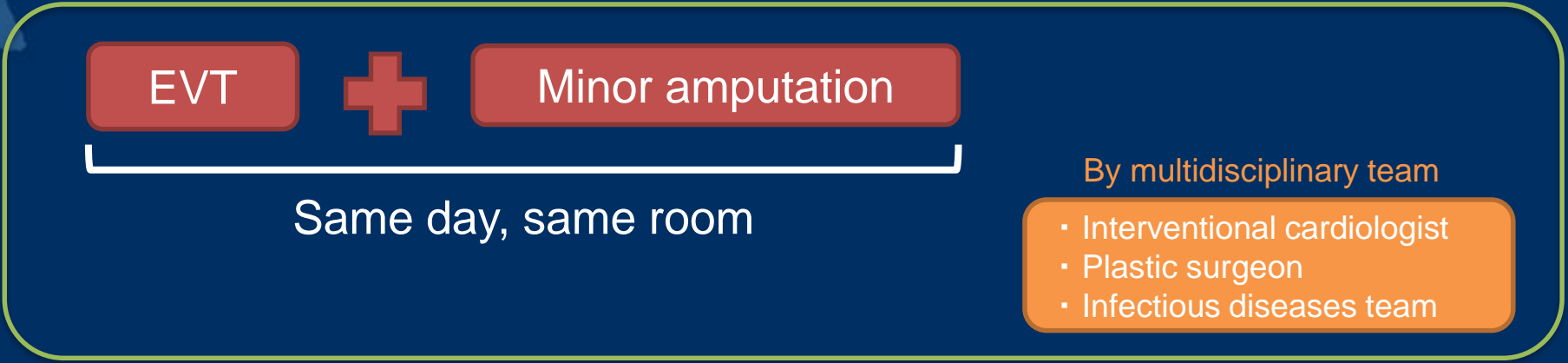


Concept of “Simultaneous EVT and minor amputation” strategy

Conventional strategy



Simultaneous strategy





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Benefits of simultaneous strategy

The first case of simultaneous strategy

Acute infectious CLI



Indication enlargement

Advantages of simultaneous strategy

- Infection control
- Reduction of patient burden (one-time treatment)
- Shortening of treatment period



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Method

- Single center, retrospective analysis
- Consecutive 34 patients, 36 limbs that underwent simultaneous EVT and minor amputation from June 2017 to December 2018



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Patients and limbs characteristics

	Mean \pm SD or N (%)
Age	76.0 \pm 10.8
Male	25 (73.5)
BMI	20.7 \pm 4.73
<u>Ambulatory status</u>	
Ambulant	20 (58.8)
Wheelchair	7 (20.6)
On bed	7 (20.6)

	N (%)
Diabetes	26 (76.5)
Hypertension	30 (88.2)
CKD (eGFR<60)	26 (76.5)
Hemodialysis	20 (58.8)
CAD	18 (52.9)
CVD	14 (41.2)
CHF	11 (32.3)



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Patients and limbs characteristics

N (%)	
<u>Rutherford classification</u>	
5	13 (36.1)
6	23 (63.9)
<u>Prior revascularization</u>	
Bypass surgery	2 (5.56)
FP bypass (occlusion)	2
EVT	22 (61.1)

Mean \pm SD or N(%)	
Alb (g/dl)	3.00 \pm 0.58
CRP (mg/dl)	6.86 \pm 7.34
HbA1c (%)	6.68 \pm 1.18
LDL (mg/dl)	85.7 \pm 40.1
Cre (mg/dl)	4.01 \pm 3.13
Hb (g/dl)	10.4 \pm 2.14



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Treatment procedure

EVT procedures

	N (%)
<u>Treated lesion</u>	
Aortoiliac	4 (11)
Femoropopliteal	17 (47)
Below knee	33 (92)
<u>Complication</u>	
Access site hematoma	1

Amputation procedures

	N (%)
<u>Anesthesia</u>	
Digital block	14 (38.9)
Sciatic/saphenous nerve block	22 (61.1)
<u>Amputation level</u>	
Metatarsophalangeal (MP) joint	16 (44.4)
Trans-metatarsal	12 (33.3)
Lisfranc joint	4 (11.1)
Chopart joint	4 (11.1)
<u>Complication</u>	
	0 (0)



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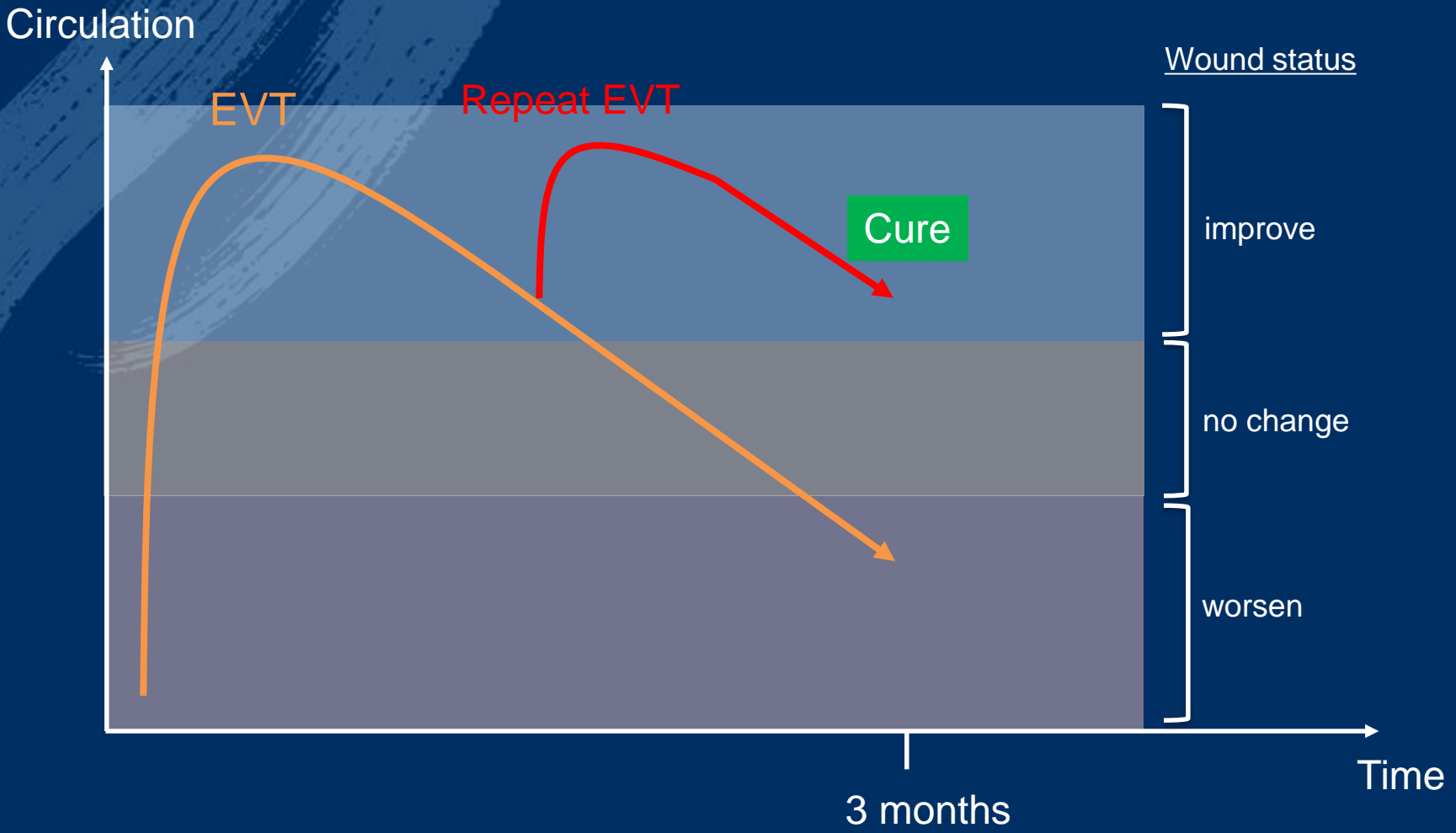
Follow up

	Mean \pm SD or N (%)
Mean follow-up period (days)	151 \pm 123
Length of hospital stay (days)	39.8 \pm 18.1
Repeat EVT	18 (50)
Additional minor amputation	3 (8.3)
Hyperbaric Oxygen Therapy	7 (19.4)
Negative Pressure Wound Therapy	7 (19.4)

	N (%)
Major amputation	1 (2.78)
<u>Death</u>	5 (14.7)
Stroke	2
Sepsis	1
NOMI	1
Sudden death	1



Planned repeat EVT





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Mortality

Our patients

Mortality: 14.7%/5months

n=34

Age	76y
BMI	20.7
DM	76.5%
HD	58.8%
Ambulatory	60%

Recent multicenter registry in Japan

Mortality: 26.2%/year

n=750

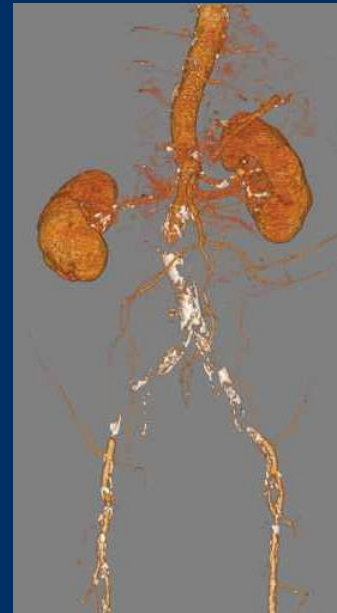
Age	73y
BMI	21.8
DM	67.5%
HD	52.8%
Ambulatory	75%



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Case 1

- ✓ 60s male with diabetes
- ✓ Referred to our hospital because of gangrene of the first toe
- ✓ Fever, CRP 10.39 mg/dl, redness and warmth
- ✓ Aortic occlusion, SFA stenosis





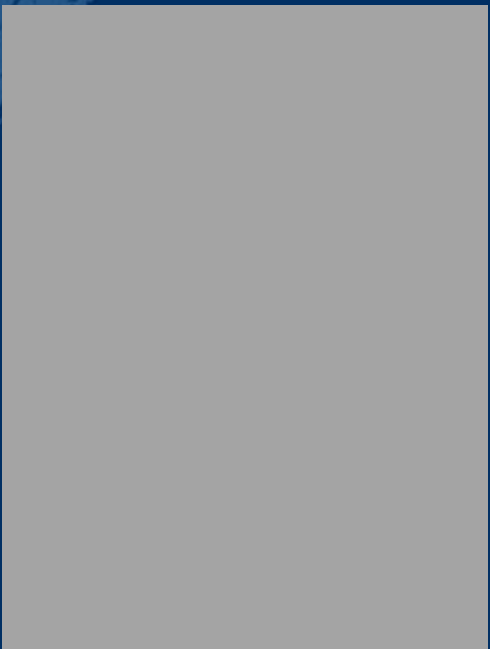
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Case 1

Pre treatment



Post treatment



Aortoiliac occlusion
Self-expandable stents implantation

SFA stenosis
Balloon angioplasty



Case 1



- ✓ Toe amputation was performed immediately after EVT in the catheter room.
- ✓ We continued antibiotics based on the culture results from wound and bone.
- ✓ The amputation wound cured two months after the procedure





Case 2

- ✓ 70s female with diabetes, with a history of stroke
- ✓ Rutherford 6 infectious limb, necrotic ulcers accompanied by a bad smell.
- ✓ The patient rejected BK amputation at the previous hospital, although her ADL was wheelchair-dependent.

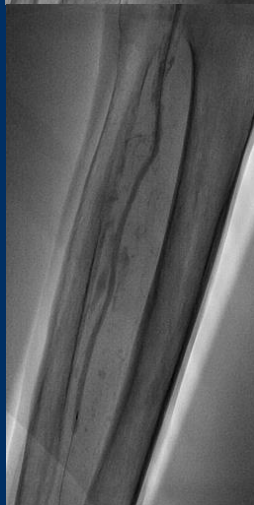
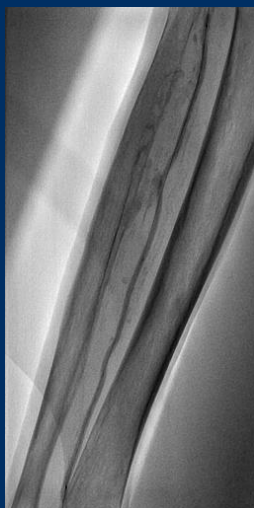
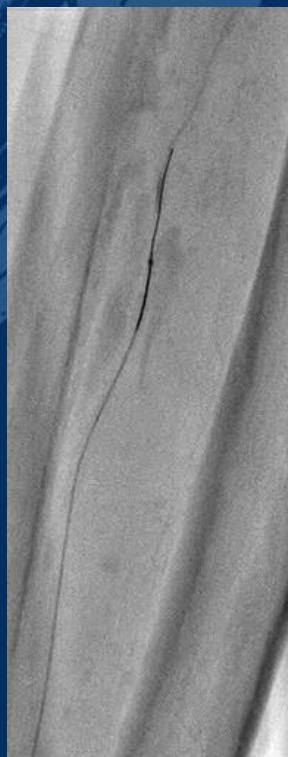
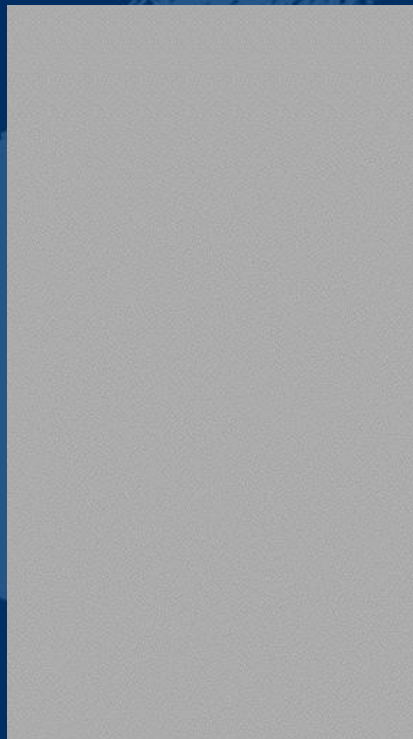




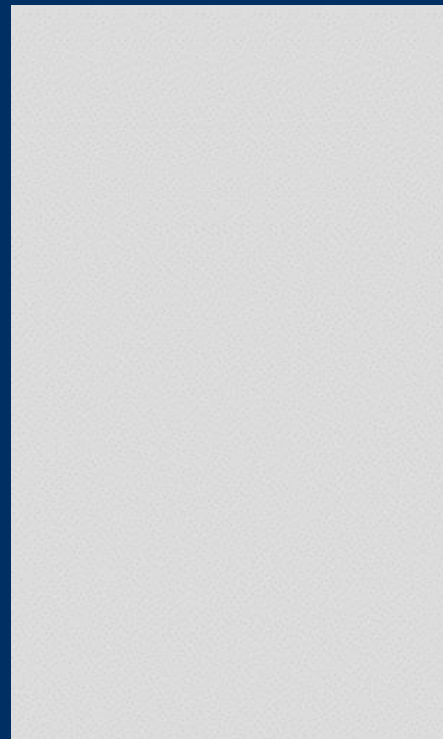
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Case 2

Pre treatment



Post treatment



Successful balloon angioplasty of the ATA and peroneal artery.



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Case 2



Repeat EVT
(7W)



3 months after treatment



✓ Chopart joint amputation immediately after revascularization



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Limitation

1. Single-center, non-randomized, retrospective
2. Small number
3. Short follow-up period



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Conclusion

- ✓ “Minor amputation immediately after endovascular revascularization strategy” could be performed safely, and its short-term clinical outcome was acceptable despite of poor patient background.
- ✓ Its treatment strategy can be one of the therapeutic options, especially for patients with poor general condition, elderly, and infectious CLI.



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