Non-cardiac surgery
Cardiovascular assessment and management - How to session - Case

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Task

Patient with coronary artery disease undergoing major vascular surgery

How not to do
Patient characteristics

✅ Moped driver
✅ „Couch patato“
✅ Obese
✅ Heavy smoker
✅ Alcohol abuse
✅ 70% disability pension
Patient data

✓ 69 yo
✓ BMI 37.0 kg/m2
✓ Cardiovascular risk factors
  – Smoker (80 py)
  – Hypertension
  – Hyperlipidemia
  – Familial History
✓ COPD
  – FVC: 3.67 l (4.05 l), FEV1: 2.07 l (3.22 l); FEV1/FVC: 56%
Patients „minor illnesses“

- Joint problems
- Chronic lower back pain
- Coxarthrosis bilateral
- Erectile dysfunction
Patient Hx

✓ 09/2004 Moped crash
  – Impaired wound healing
  – Skin transplant to skin defect right knee (15x5 cm)
✓ Claudication, walking distance 100-200 m
✓ 11/2004 necrosis right malleolus (3x1.5 cm) & Dig I right foot

✓ Diagnosis of severe biiliac peripheral arterial disease (occlusion right side, severe stenosis left)
✓ Revascularization of both iliacs
2004 preoperative cardiac evaluation

- **ECG**
- **Lung function testing**
  - Obstructive lung disease
- **Echocardiography**
  - Concentric left ventricular hypertrophy
  - Normal systolic left ventricular function, LV EF 70%
  - Sclerosis aortic valve
  - Dilatation ascending aorta (4.5 cm), minimal AR
- **No cardiac stress testing**
2004 ECG: ± normal
# Perioperative risk

<table>
<thead>
<tr>
<th>Low-risk: &lt; 1%</th>
<th>Intermediate-risk: 1–5%</th>
<th>High-risk: &gt; 5%</th>
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</thead>
<tbody>
<tr>
<td>• Superficial surgery                                                          • Intraperitoneal: splenectomy, hiatal hernia repair, cholecystectomy                   • Aortic and major vascular surgery</td>
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<tr>
<td>• Breast                                                                      • Carotid symptomatic (CEA or CAS)                                                       • Open lower limb revascularization or amputation or thromboembolectomy</td>
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<td>• Dental                                                                      • Peripheral arterial angioplasty                                                        • Duodeno-pancreatic surgery</td>
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<td>• Endocrine: thyroid                                                           • Endovascular aneurysm repair                                                          • Liver resection, bile duct surgery</td>
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<tr>
<td>• Eye                                                                          • Head and neck surgery                                                                   • Oesophagectomy</td>
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<tr>
<td>• Reconstructive                                                              • Neurological or orthopaedic: major (hip and spine surgery)                            • Repair of perforated bowel</td>
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<tr>
<td>• Carotid asymptomatic (CEA or CAS)                                           • Urological or gynaecological: major                                                   • Adrenal resection</td>
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<tr>
<td>• Gynaecology: minor                                                           • Renal transplant                                                                       • Total cystectomy</td>
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<tr>
<td>• Orthopaedic: minor (meniscectomy)                                           • Intra-thoracic: non-major                                                               • Pneumonectomy</td>
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<tr>
<td>• Urological: minor (transurethral resection of the prostate)</td>
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<td>• Pulmonary or liver transplant</td>
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2004 first vascular surgery

- 11/2004 s/p Y graft iliaco bifemoral (right A. iliaca com. to Aa fem. Bilateral)
- PTA intraop A. iliac com. right
- Postoperativ course uneventful
2008: 4 yrs later, claudication right leg
2008 second vascular surgery

✓ Operation w/o further cardiac evaluation
  – „he had no problems in 2004“
✓ TEA & patch @ anastomosis of right femoral artery
✓ No perioperativ problems
✓ Postoperativ course uneventfull
✓ Meds @ discharge
  – Aspirin, Amilorid/HCT
✓ Marked improvement of claudication
2012: 4 yrs later, pain right leg

100%

50-79%
Chest X Ray preop
07/2012: ECG preoperativ

QRS: 95 ms / P: 87 ms / PQ: 202 ms / QT: 347 ms / QTC: 443 ms (113%) / QTC-Disp.: 32 ms / QRS-Achse: 41°
7/2012 third vascular surgery

✓ No further cardiac evaluation
  – „he had no problems in 2008“

✓ Thrombectomie right graft limb & patch @ anastomosis

✓ Uneventfull postoperativ course

✓ Planned TEA & patch anastomosis left side two month later
9/2012 fourth vascular surgery

✓ Med @ admission
  – Aspirin 100 mg, Amilorid/HCT 5/50 mg, Tamsulosin

✓ No further cardiac evaluation
  – „he had no problems in 7/2012“

✓ TEA AFC left side

✓ Operation w/o problems
09/2012 postoperativ course

- CP during the first night, improvement next morning
- CP again in the afternoon
  - CKMB 47 U/l, hs Troponin 0.36
  - NSTEMI

- Cardiologist involved for the first time
- Cath lab 7 pm
  - Pain free, stable condition
ECG during CP
09/2012: coronary angiography
09/2012: coronary angiography

- Echocardiography
  - LV function impaired,
  - LV EF ca 45%
  - Hypokinesie anteroseptal

- Syntax Score: 33

- Euroscore II:
  - Estimated mortality: 11%

- Transfered for CABG
Surgeons always try to do their best
Sometimes it’s impossible
What went wrong?

• Misjudgement of perioperativ risk?
  – Imaging stress testing in asymptomatics & high risk surgery

• What can we do better in the future?
09/2012: PCI instead of CABG

- Cre8 3.0x25 mm LAD
- Cre8 2.75x20 mm Diag1
- Mini crush
- Kissing Dilatation

- Cre8 3.5x25 mm RCA prox
- Cre8 3.5x20 mm RCA mid
PCI LM 06/2013: disease progression

Promus Element 3.5x24 mm
2015 patient is in stable condition

- Moped driver
- „Couch patato“
- Obese
- Heavy smoker
- Alcohol consume
- 70% disability pension