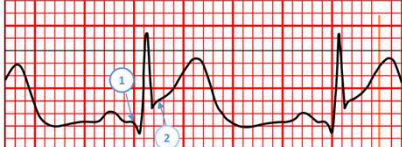
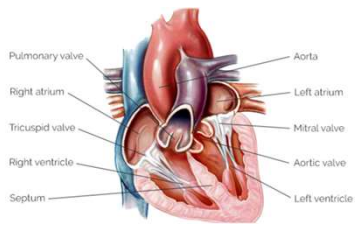


Spitalregion Luzern/Nidwalden

luzerner kantonsspital  
Luzern · St. Gallen · Schwyz

Neues aus der Kardiologie – Nützliches für die Hausarztpraxis

## Von akut über chronisch – Der KHK-Patient beim Grundversorger

PD Dr. med. Adrian Attinger, Leitender Arzt interventionelle Kardiologie  
12. Juni, 2025

Kompetenz, die lächelt.

1

## Koronare Herzkrankheit

### Klassifikation

#### Chronisches Koronarsyndrom

##### Asymptomatisch

Typical angina (definite)

3/3 of the following:

- Substernal CP of characteristic quality and duration
- Provoked by exertion/emotional stress
- Relieved by rest and/or nitrates within minutes

Atypical angina (probable)

2/3 characteristics

Non-anginal CP

0-1/3 characteristics



Normal condition of an artery

Beginning of plaque formation

Increased plaque accumulation

Narrowed artery blocked by a blood clot

#### Akutes Koronarsyndrom

##### Instable AP

Type 1 Sontaneous: Plaque rupture/erosion

Type 2 Secondary ACS: spasm, anemia, Afib, hypotension etc.

Type 3 Sudden cardiac death

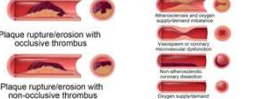
Type 4a Periprocedural (PCI)

Type 4b Stent-thrombosis

##### NSTEMI

Type 5 Periprocedural (ACBP)

##### STEMI

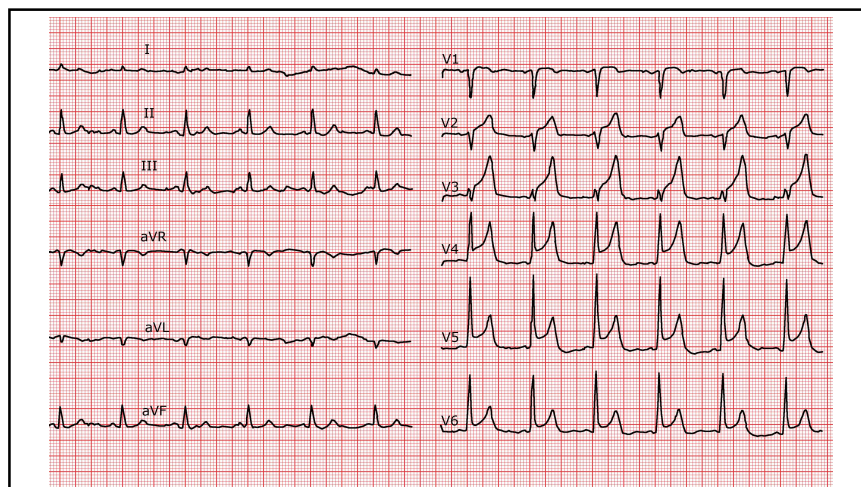


Plaque rupture/erosion with occlusive thrombus

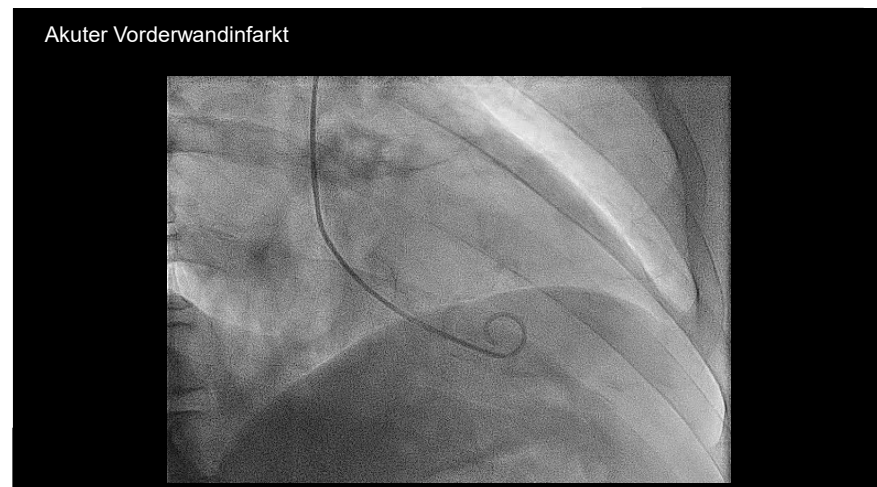
Plaque rupture/erosion with non-occlusive thrombus

2019 Guidelines on Chronic Coronary Syndromes - ESC Clinical Practice Guidelines  
2020 Acute Coronary Syndromes (ACS) in Patients Presenting without Persistent ST-Segment Elevation (Management of Guidelines - ESC Clinical Practice Guidelines

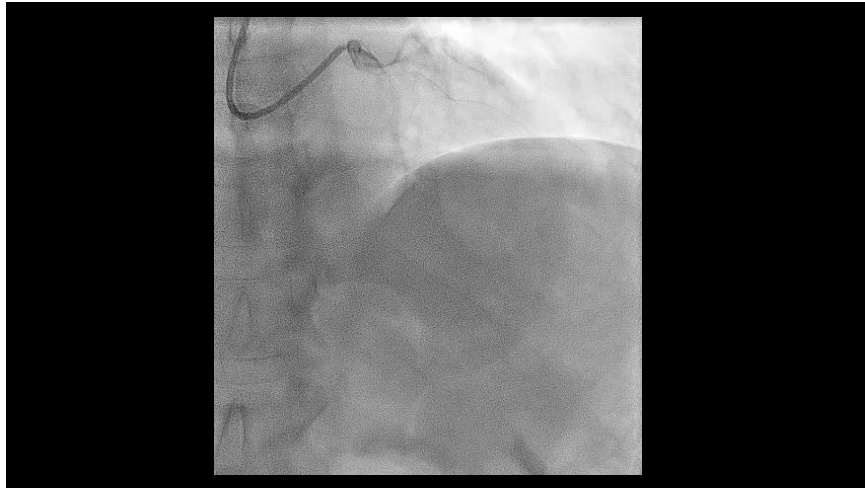
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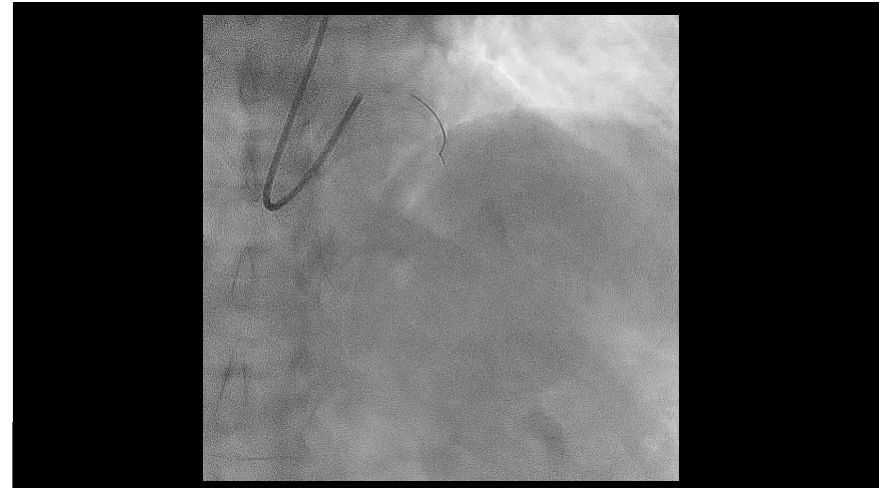
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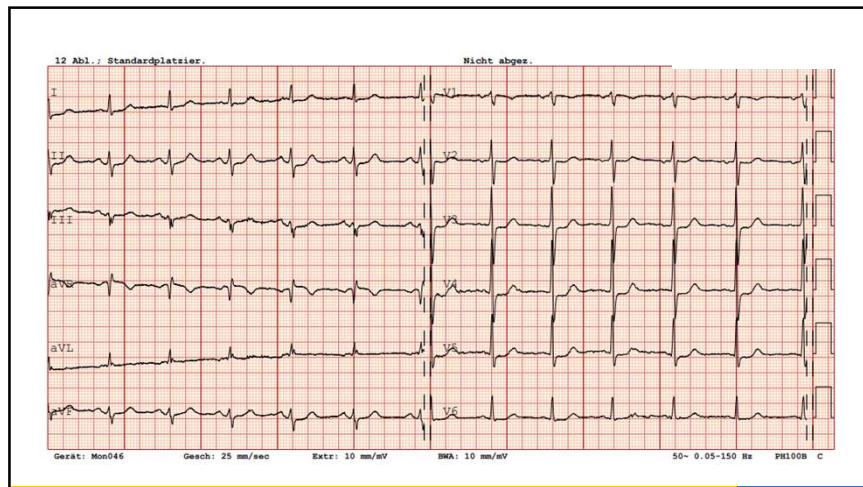
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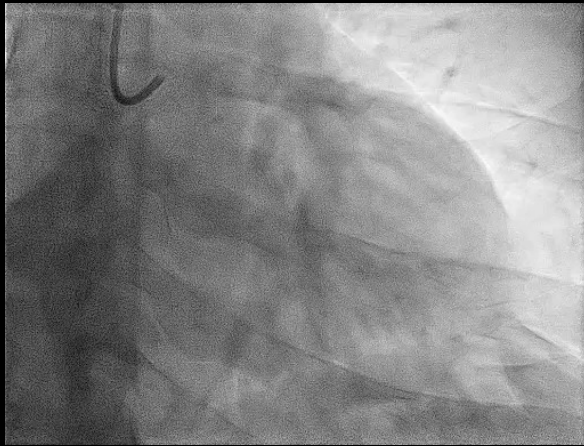
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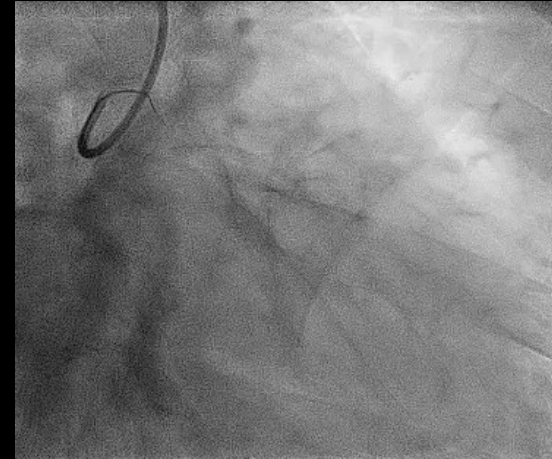
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|                               |            |                             |        |
|-------------------------------|------------|-----------------------------|--------|
| <b>ELEKTROLYTE</b>            |            |                             |        |
| Natrium                       | 17.05.2025 | Bereich: 136 - 145 mmol/L   |        |
| Kalium                        | 17.05.2025 | Bereich: 3.4 - 4.5 mmol/L   |        |
| <b>METABOLITE</b>             |            |                             |        |
| Glucose                       | 17.05.2025 | Bereich: 4.11 - 6.05 mmol/L |        |
| HbA1c (IFCC)                  | 19.05.2025 | Bereich: 29 - 38 mmol/mo... | 35     |
| HbA1c (DCCT)                  | 19.05.2025 | Bereich: 4.8 - 5.6 %        | 5.3    |
| Creatinin (enzymatisch)       | 17.05.2025 | Bereich: 59 - 104 µmol/L    |        |
| eGFR                          | 17.05.2025 | Einheit: ml/min/1.73m²      |        |
| Harnstoff                     | 17.05.2025 | Bereich: 2.76 - 8.1 mmol/L  |        |
| Cholesterin gesamt            | 19.05.2025 | Bereich: <5.2 mmol/L        | 5.97 ▲ |
| Cholesterin-HDL 4. Generation | 19.05.2025 | Bereich: >1 mmol/L          | 1.77   |
| Cholesterin-LDL               | 19.05.2025 | Bereich: <2.59 mmol/L       | 4.05 ▲ |
| Triglyceride                  | 19.05.2025 | Bereich: <1.7 mmol/L        | 1.26   |
| <b>PROTEINE</b>               |            |                             |        |
| CRP                           | 17.05.2025 | Bereich: <5 mg/L            |        |
| <b>HERZ</b>                   |            |                             |        |
| Creatinkinase ( CK )          | 17.05.2025 | Bereich: <190 U/L           | 136    |
| CK-MB                         | 17.05.2025 | Bereich: <6.22 µg/L         | 8.73 ▲ |
| Troponin T hs                 | 17.05.2025 | Bereich: <14 ng/L           | 454 ▲  |

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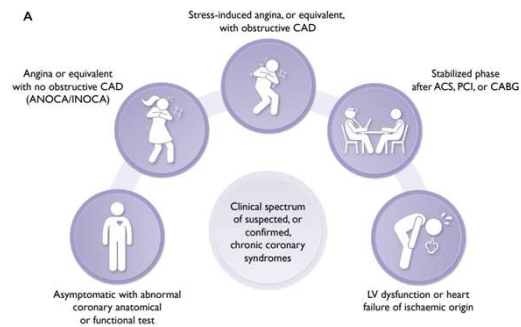
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## Chronisches Koronarsyndrom

### Klinische Präsentation



2024 ESC Guidelines for the management of chronic coronary syndromes; European Heart Journal (2024) 00, 1–123

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## Chronisches Koronarsyndrom

### Klinische Wahrscheinlichkeit einer obstructiven KHK

**1** Symptom score (0–3 points)

| Chest pain characteristics                                                                    |                                                                                           | Symptom score                                                                |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Type and location                                                                             | Constricting discomfort located retrosternally or in neck, jaw, shoulder or arm (1 point) | Main symptom either:<br>Chest pain (0–3 points)<br>or<br>Dyspnoea (2 points) |
| Aggravated by                                                                                 | Physical or emotional stress (1 point)                                                    |                                                                              |
| Relieved by                                                                                   | Rest or nitrates within 5 min (1 point)                                                   |                                                                              |
| Dyspnoea characteristics                                                                      |                                                                                           |                                                                              |
| Shortness of breath and/or trouble catching breath aggravated by physical exertion (2 points) |                                                                                           |                                                                              |

**2** Number of risk factors for CAD (0–5):  
Family history, smoking, dyslipidaemia, hypertension and diabetes

**3** Estimate the Risk Factor-weighted Clinical Likelihood (RF-CL) of obstructive CAD

Symptom score

| Number of risk factors | 0–1 2–3 4–5 |     | 0–1 2–3 4–5 |     | 0–1 2–3 4–5 |     | 0–1 2–3 4–5 |     | 0–1 2–3 4–5 |     |
|------------------------|-------------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|-----|
|                        | Women       | Men | Women       | Men | Women       | Men | Women       | Men | Women       | Men |
| Age 30–39              | 0           | 1   | 0           | 1   | 0           | 1   | 0           | 1   | 0           | 1   |
| Age 40–49              | 1           | 2   | 1           | 3   | 1           | 2   | 1           | 3   | 1           | 2   |
| Age 50–59              | 2           | 3   | 2           | 4   | 2           | 3   | 2           | 4   | 2           | 3   |
| Age 60–69              | 3           | 4   | 3           | 5   | 3           | 4   | 3           | 5   | 3           | 4   |
| Age 70–80              | 4           | 5   | 4           | 5   | 4           | 5   | 4           | 5   | 4           | 5   |

Clinical likelihood: Very low Low Moderate

ESC

2024 ESC Guidelines for the management of chronic coronary syndromes; European Heart Journal (2024) 00, 1–123

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## Chronisches Koronarsyndrom

### ■ Diagnostische Tests

| Anatomisch | Funktionell              | Hybrid |
|------------|--------------------------|--------|
| Koronar-CT | Stress Echokardiographie | FFR-CT |
|            | SPECT/ PET               | PET-CT |
|            | Stress MRI               |        |

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## Chronisches Koronarsyndrom

### ■ Diagnostische Tests

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## Chronisches Koronarsyndrom

### ■ Fallvignette

- 55-jährig,
- Angina pectoris CCS I, NYHA I
- Ausgeprägtes kardiovaskuläres Risikoprofil:
  - Anhaltender Zigaretten-Konsum (30 py)
  - Arterielle Hypertonie
  - Dyslipidämie
- Erektile Dysfunktion mit arteriellem Pulsdefizit der penilen Blutgefäßen
- Kardiologische Standortbestimmung empfohlen

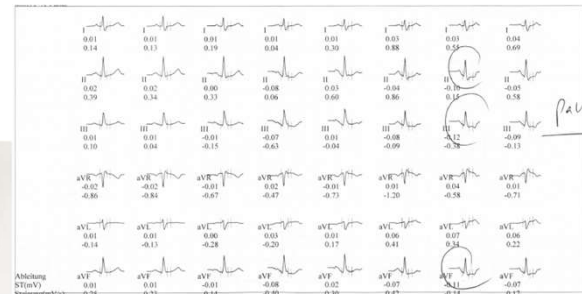
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## Fallvignette

### ■ Ergometrie

- Max. Belastung bis 270 W (132% Soll)
- Maximale Herzfrequenz 153/min (92% Soll)
- Maximaler Blutdruck 203/105 mmHg



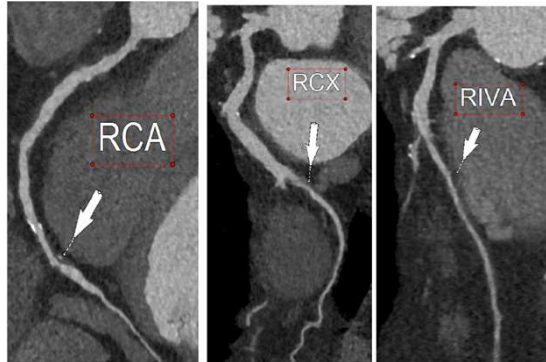
16

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## Fallvignette

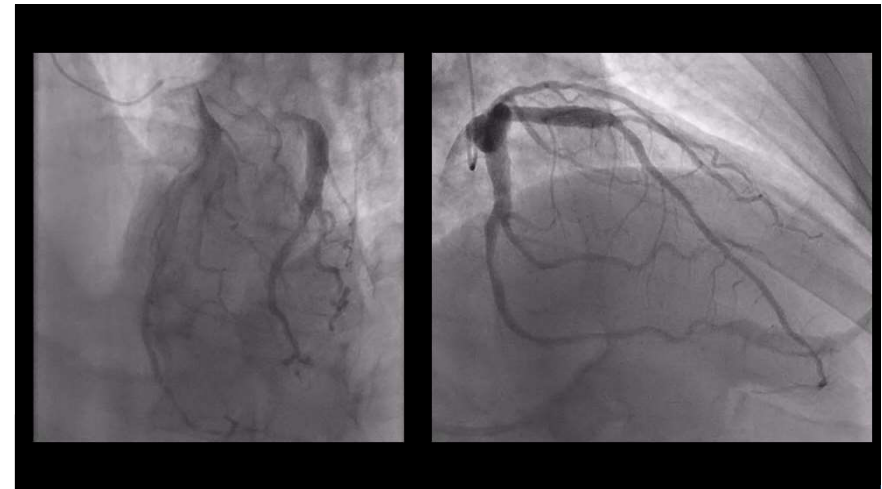
## ■ Koronar-CT

- Schwere diffuse Koronaratheromatose, diffuse aneurysmatische Erweiterungen
- RIVA Mitte 50-70%
- 1. Diagonalast 50-70%
- RCX mit 25-50%
- RCA Mitte 70-90%



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## Fallvignette

## ■ FFR – Druckmessung im Gefäß



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### Fallvignette

#### ■ Diagnose

- Ektatische Form der koronaren Herzkrankheit
- Keine hämodynamisch relevante Koronarstenosen

#### ■ Therapie

- Konservativ
- Aspirin cardio 100 mg 1-0-0 auf Dauer
- Rigorose Lipidsenkung
- Optimale Kontrolle der kardiovaskulären Risikofaktoren
- Stopp Nikotinkonsum

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### Chronisches Koronarsyndrom

#### ■ Fallvignette

- 61-jährig, ♀
- Zunehmende Anstrengungsdyspnoe, epigastrisches Druckgefühl
- Monomorphe ventrikuläre Extrasystolie
- KvRF: Arterielle Hypertonie, Dyslipidämie
- Persönliche Anamnese:
  - Struma multinodosa et cystica
  - Osteoporose
  - Mammakarzinom
- TTE: Strukturell normales Herz

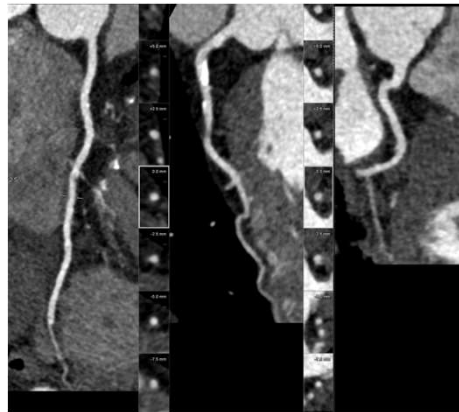
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### Chronisches Koronarsyndrom

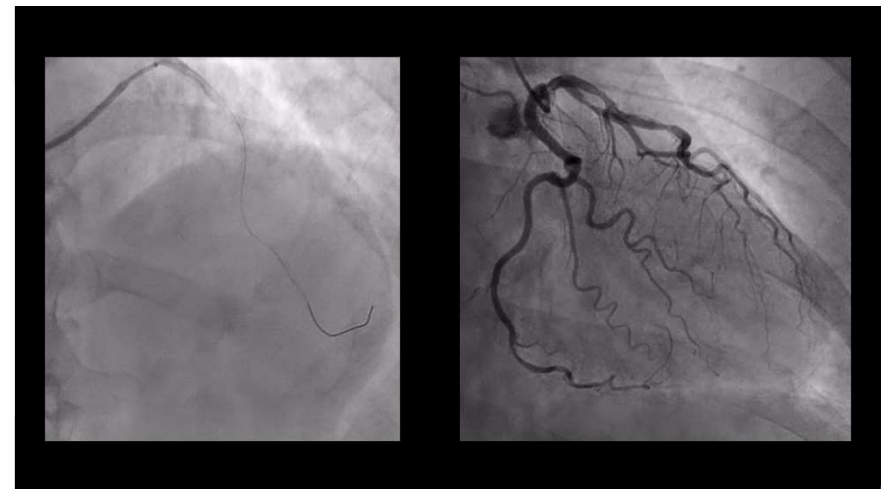
#### ■ Koronar-CT

- RIVA: Kalkplaques prox. (< 50%). Softplaque mittleres Drittel (>50%)
- CAD-RADS 3



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## Chronisches Koronarsyndrom

### ■ Diagnostische Tests

| Klinische Wahrscheinlichkeit | Symptome                       | Diagnostik                                                                  |
|------------------------------|--------------------------------|-----------------------------------------------------------------------------|
| Niedrig                      | +/-                            | Nichts oder Herz-CT                                                         |
| Mittel oder hoch             | Atypische Symptome             | Nichts, Ergometrie, <b>Herz-CT</b> (funktioneller Test)                     |
|                              | Symptome mild bis mittelschwer | < 65 Jahre → <b>Herz-CT</b><br>> 65 Jahre → <b>Stress-TTE/ PET-CT</b>       |
|                              | Symptome schwer                | Ergometrie (Zeitpunkt Koro) <b>Koronarangiographie</b> (funktioneller Test) |

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## Spezielle Szenarien

### Diabetes mellitus/schwere Niereninsuffizienz

- Anatomische Darstellung mit CT nicht geeignet (verkalkte Gefäße häufig)
- Funktioneller Test: Stress-TTE, PET-CT

### Präoperative Abklärung bei immobilen Patienten

- Stress-TTE
- (PET-CT)

### Bekannte KHK mit St. n. Bypass-OP & unklare Symptomatik

- (PET)-CT

### Lokalisation/Quantifizierung der Ischämie, Viabilität (bekannte KHK, St. n. Bypass)

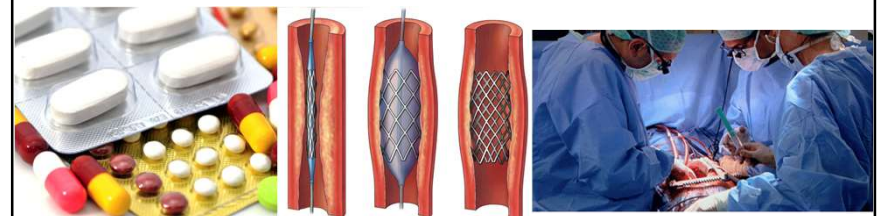
- PET-CT

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## Chronisches Koronarsyndrom

### ■ Behandlungsstrategien



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## Koronare Herzkrankheit

- Lifestyle management

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## Koronare Herzkrankheit

- Medikamentöse Therapie

### Antianginöse Therapie

- Betablocker
- Kalziumantagonisten
- *Nitrate*
- *Ranolazin*
- *Ivabradin*
- *Nicorandil*

### Event Prävention

- Aspirin +/- P2Y12-Inhibitor
- Lipidsenkung
- Ggf. ACEI/ARBs
- Ggf. Colchicine

### Speziell:

- **DM:** SGLT2-Inhibitor/GLP1-Agonist
- **Adipositas (BMI  $\geq 27$  kg/m<sup>2</sup>):** GLP1-Agonist
- **Herzinsuffizienz:** FANTA-4

30

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## Koronare Herzkrankheit

- Medikamentöse Therapie

### Lipidsenkung

- Statine
- Ezetimib
- PCSK9-inhibitoren
- Bempedoinsäure
- (Omega 3 Fettsäuren)

→ Ziel: LDL < 1.4 mmol/L

### Diabetes mellitus

- Empagliflozin
- Dapagliflozin
- Liraglutide
- Semaglutide

→ Ziel: HbA1c < 6.5 %

### Arterielle Hypertonie

- ACEI/ARB
- Kalziumantagonisten
- Betablocker
- MRA
- Diuretika

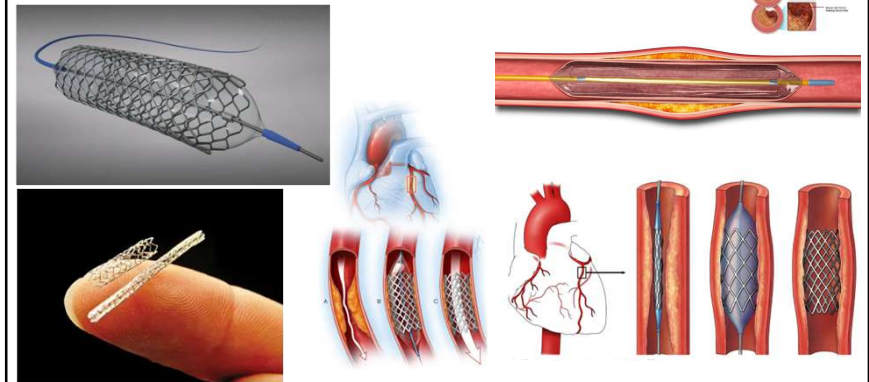
→ Ziel: < 130/80 mmHg

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## Koronare Herzkrankheit - Behandlung

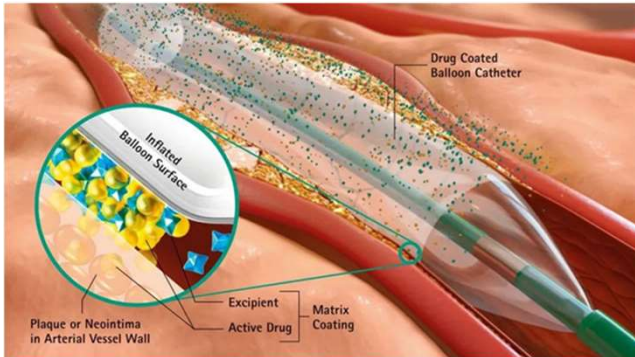
- Perkutane Koronarintervention (PCI) – Drug-eluting Stents



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## Koronare Herzkrankheit - Behandlung

### Perkutane Koronarintervention (PCI) – Drug-coated Ballone (DCB)



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## Koronare Herzkrankheit

### Antithrombotische Strategie

- CHA<sub>2</sub>DS<sub>2</sub>-Va Score
- (Precise-)DAPT Score
- Stent-Thrombose
- Koronar anatomie

- PPI
- DAPT
- Tripple Therapie
- HAS-BLED Score

Concomitant use of a proton pump inhibitor is recommended in patients receiving aspirin monotherapy, DAPT, or OAC monotherapy who are at high risk of gastrointestinal bleeding.

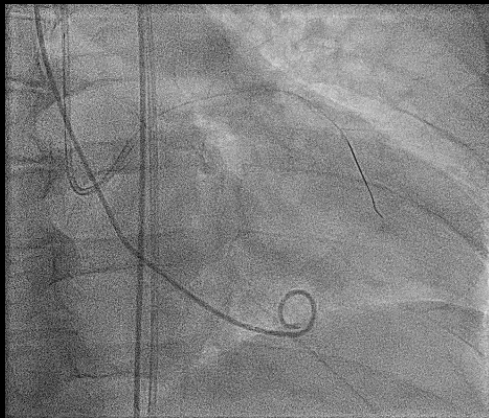
Ischämie-Risiko

Blutungsrisiko

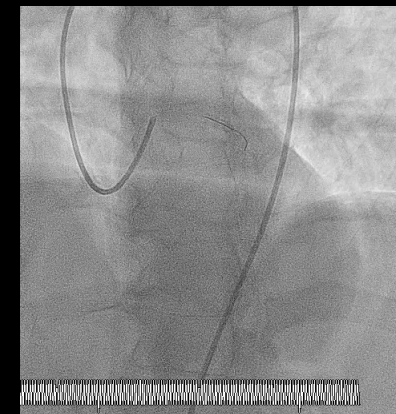
2024 ESC Guidelines for the management of chronic coronary syndromes; European Heart Journal (2024) 00, 1–123

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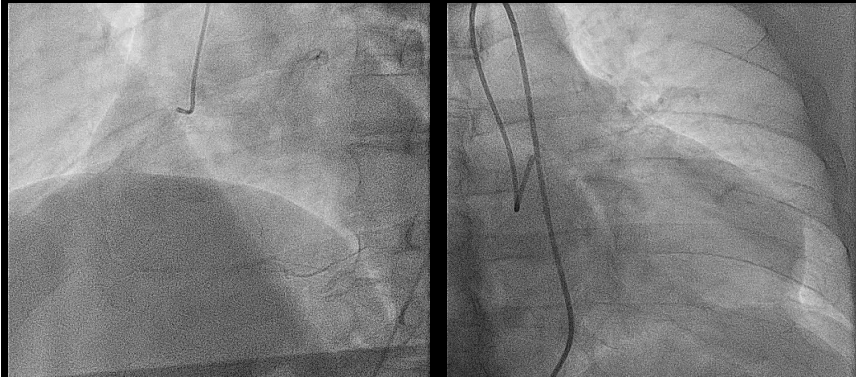
## Akuter Vorderwandinfarkt im kardiogenen Schock, LVEF 30%



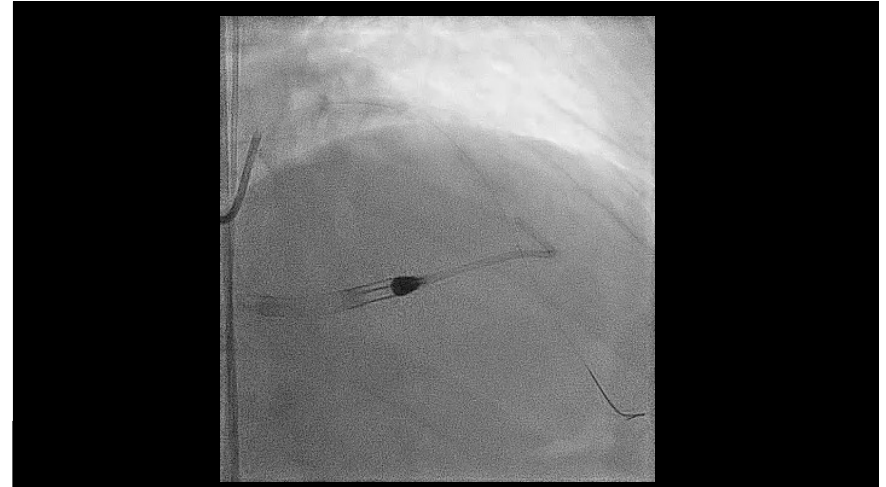
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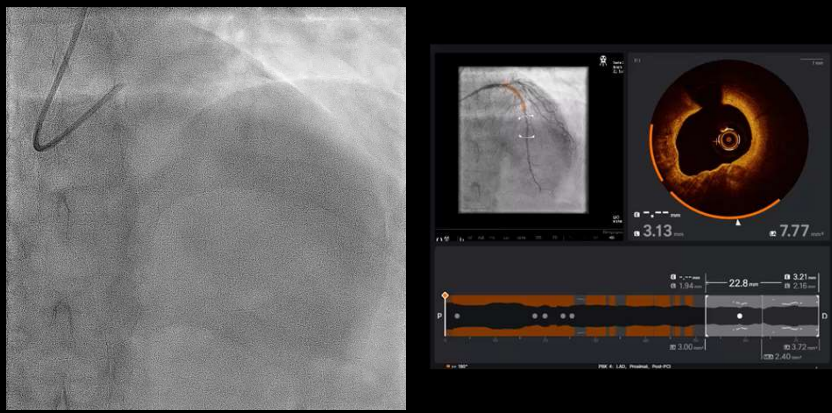


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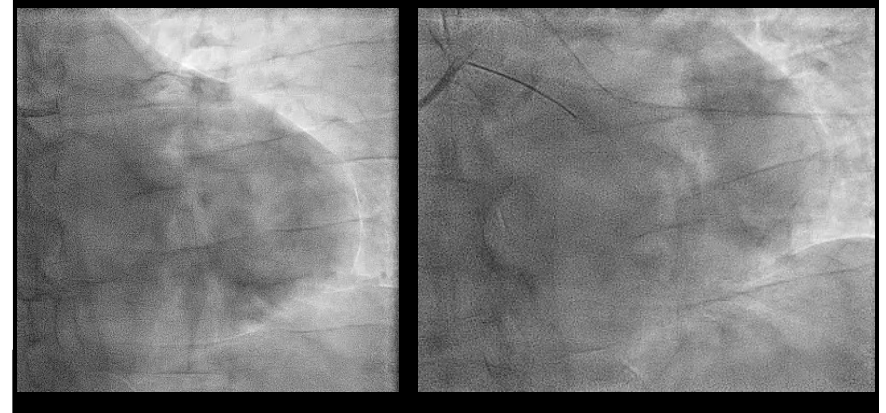
38

Staged-PCI im Spital



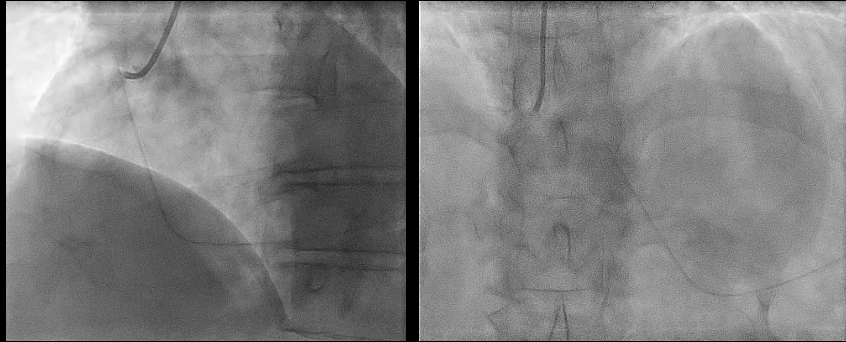
39

Staged-PCI 6 Wochen später



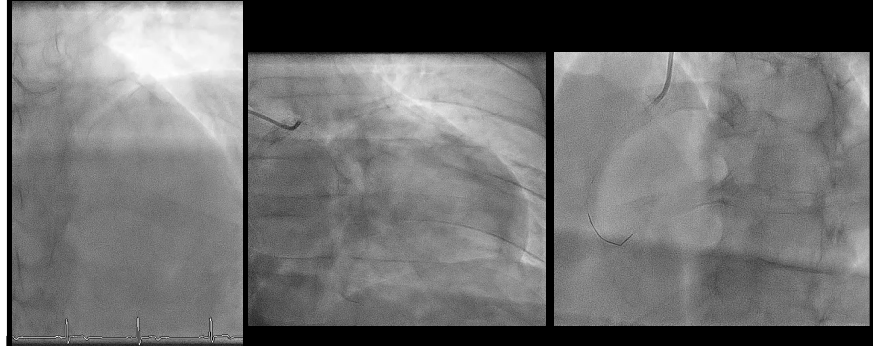
40

Staged-PCI 6 Wochen später, LVEF 54%

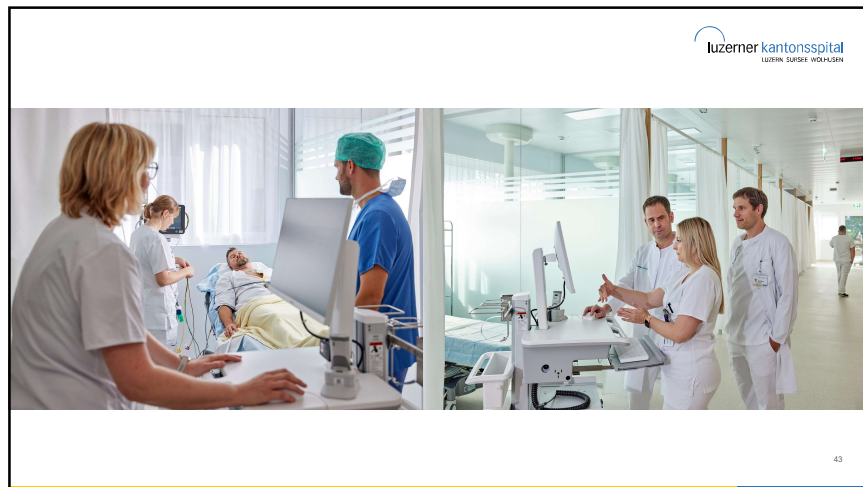


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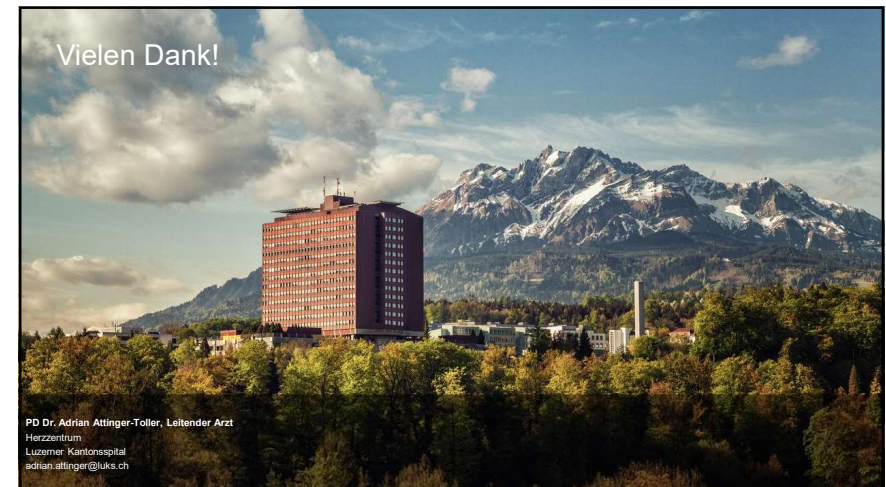
12 Monate später



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