

NORMÁLNÍ A ABNORMÁLNÍ SKIASKOPICKÉ NÁLEZY MECHANICKÝCH PROTÉZ

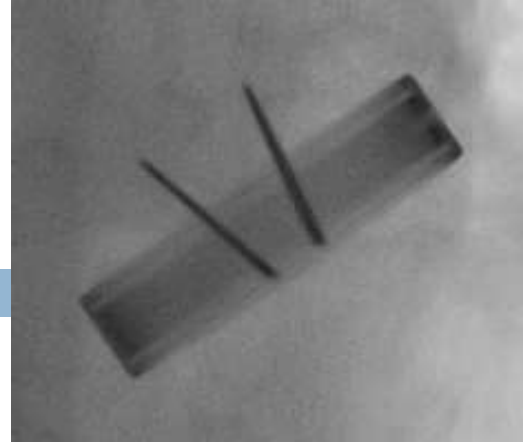
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NEMOCNICE NA HOMOLCE
PRAHA*



**20. Symposium PS chlopenní a vrozené srdeční vady
Hradec Králové 23.2.2018**

Skioskopie MPV



- Skioskopie – dynamické RTG zobrazení mechanické protézy (MPV)
- Katetrizační sál, poloha vleže
- Lokalizace MPV, identifikace roviny kolmé na prstenec i na disky
- Hodnocení pohybu disků, stanovení tzv. otevíracího (OA) a uzavíracího úhlu (CA)

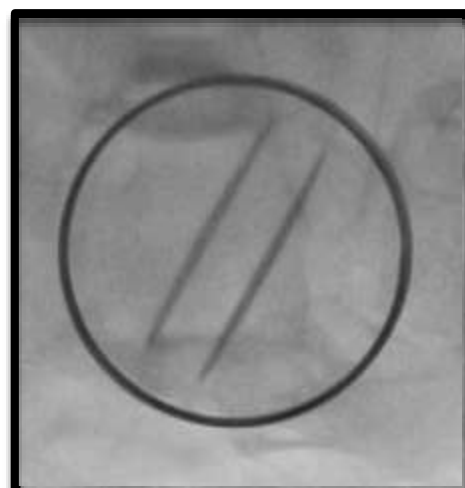
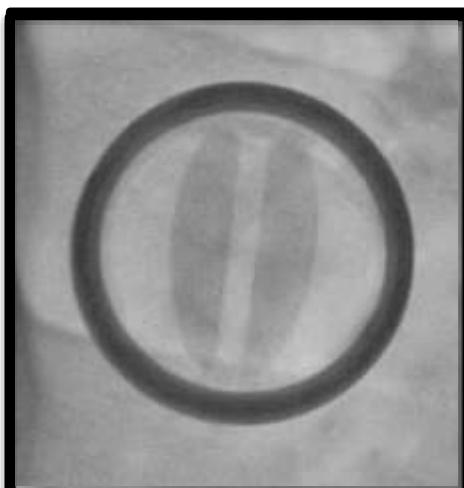
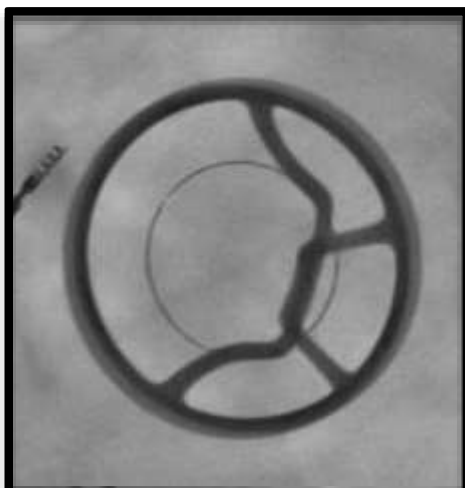
Identifikace typu MPV dle skiaskopie

Allcarbon Sorin

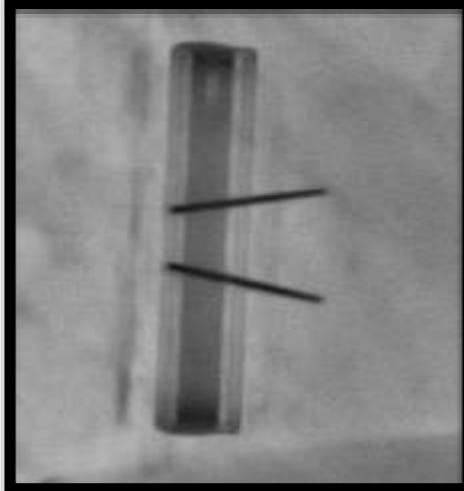
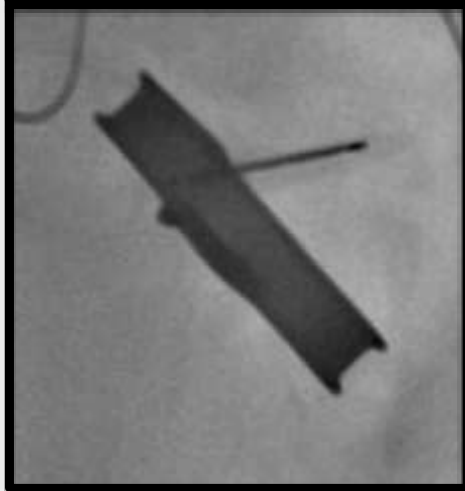
Carbomedics

St. Jude Medical

En face



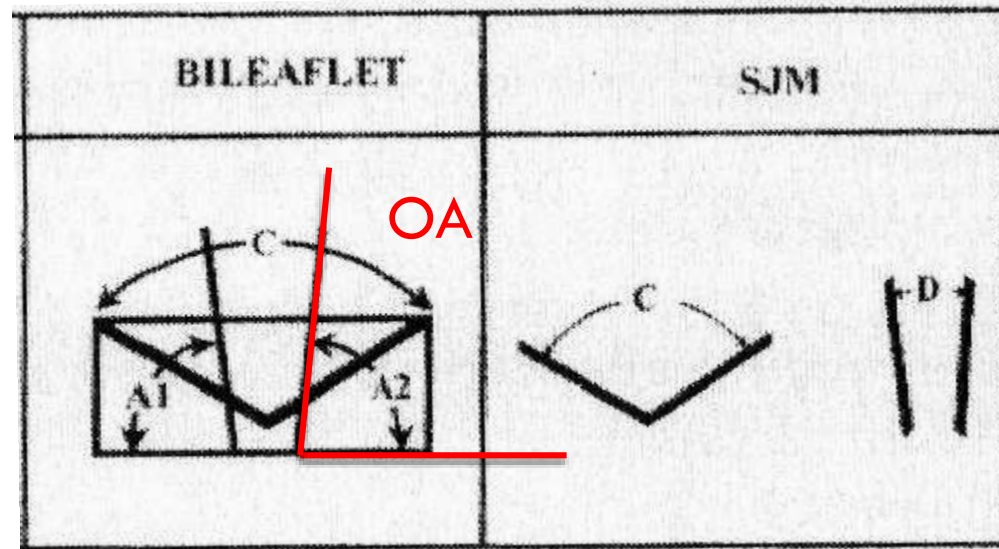
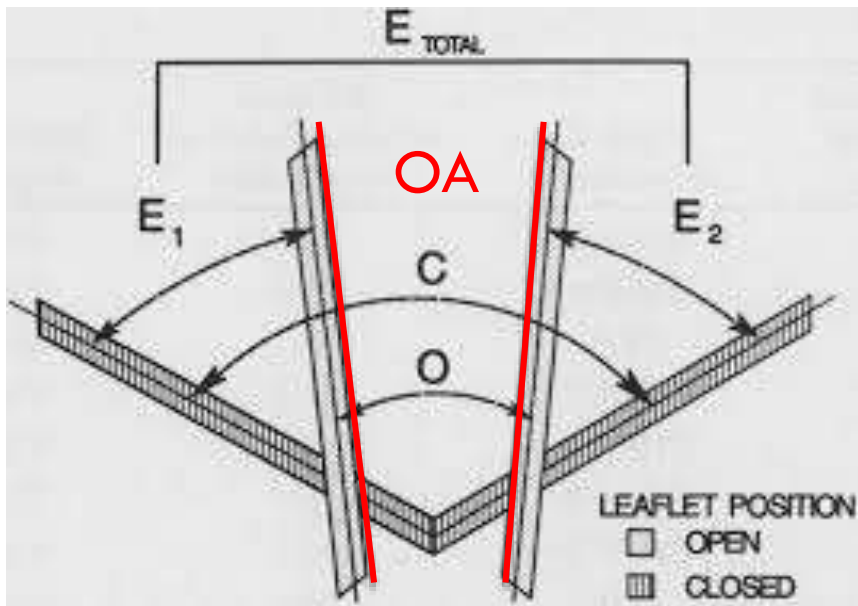
Profil



Otevírací (OA) a uzavírací úhel (CA)

| Valve manufacturer | Valve type | Leaflet opening angle (degrees) [‡] | Leaflet closing angle (degrees) [‡] | Normal Doppler echocardiographic peak gradient (mmHg) [§] | Normal Doppler echocardiographic mean gradient (mmHg) |
|--|--------------|--|--|--|---|
| ATS Open Pivot® (Medtronic ATS Medical, Minneapolis, MN, USA) ^{81,82} | Bileaflet | 85 | 25 | 11.0–47.7 | 8.0–27.0 [§] |
| Carbomedics® (Sorin Group USA Inc., Arvada, CO, USA) ^{83–89} | Bileaflet | 78 | 25 | 12.5–33.4 | 5.8–20.1 [§] |
| Duromedics (Baxter Healthcare Corp, Santa Ana, CA, USA) ^{90–92} | Bileaflet | 78 | 20 | 13.0–22.5 | 3.4–9.0 [§] |
| On-X® (On-X Life Technologies Inc., Austin, TX, USA) ⁹³ | Bileaflet | 90 | 40 | 11.4–21.3 | 5.6–11.8 [§] |
| Sorin® Bicarbon (Sorin Biomedica Cardio, Milan, Italy) ^{94–96} | Bileaflet | 80 | 20 | 9.0–29.5 | 5.0–16.3 |
| St Jude Medical® (St Jude Medical, St Paul, MN, USA) ^{96–107} | Bileaflet | 85 (19–25mm) 85 (27–31mm) | 30 (19–25mm) 25 (27–31mm) | 16.0–35.2 | 9.9–19.0 [§] |
| Björk-Shiley spherical (Shiley Inc.; Irvine, CA, USA) ^{99,108,109} | Tilting disc | 60 | 0 | 19.4–38.9 | 10.7–21.8 [§] |
| Medtronic® Hall (Medtronic, Minneapolis, MN, USA) ^{81,98,110–113} | Tilting disc | 75 | 0 | 17.1–34.4 | 8.7–17.1 [§] |
| Omniscience (Medical Inc, St Paul, MN, USA) ¹¹² | Tilting disc | 60 | 0 | 39.8–50.8 | 20.1–28.2 [§] |
| Sorin® Allcarbon (Sorin Biomedica Cardio, Milan, Italy) ^{113,114} | Tilting disc | 60 | 0 | 13.0–44.0 | 8.0–29.0 [§] |

Skiaskopie mechanických protéz

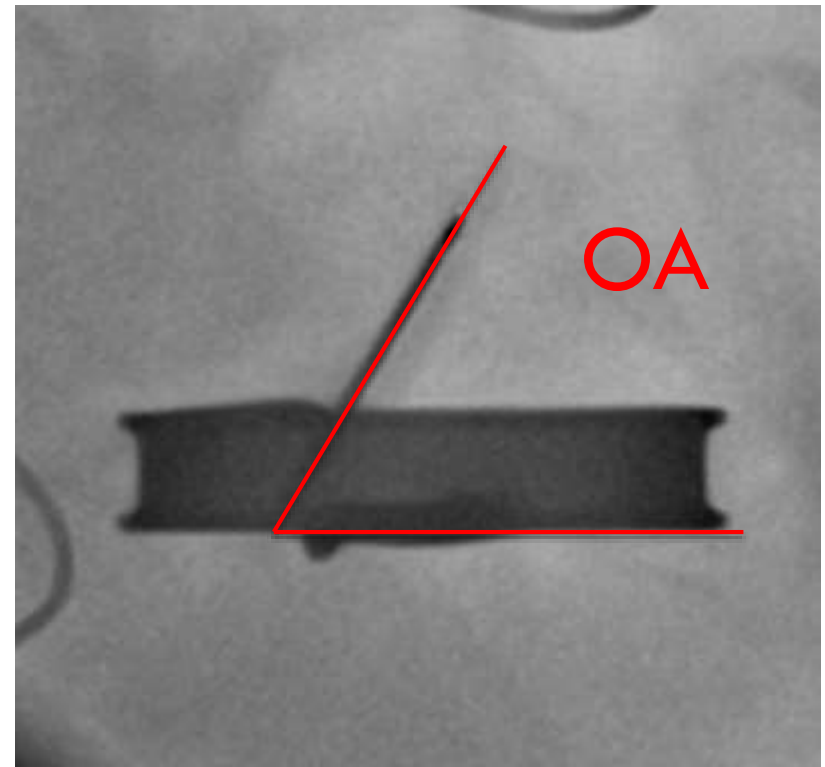
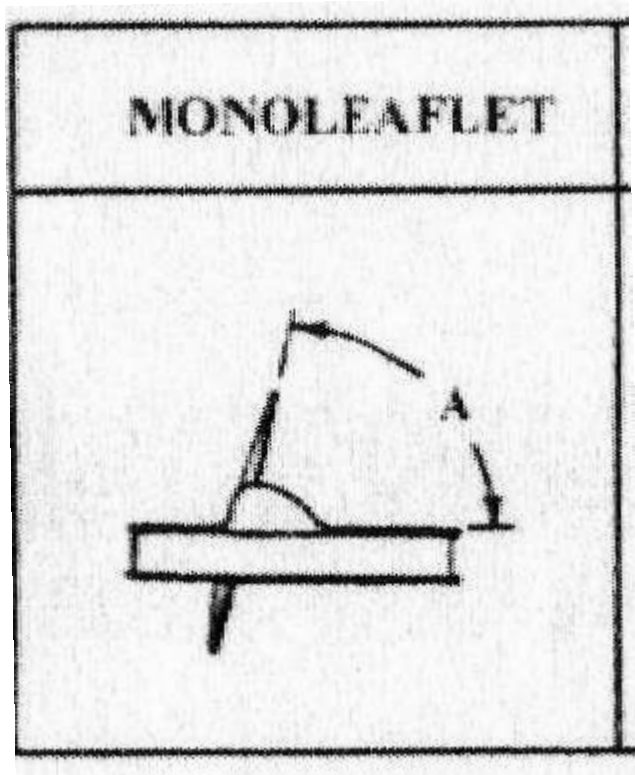


The opening angle (θ), closing angle (C), The excursion of each leaflet (E_1 , E_2), and the total leaflet excursion (E_{total})

$$\theta = (A_1 + A_2) / 2$$

$$\theta = 90^\circ - (D/2)$$

Jednodisková náhrada



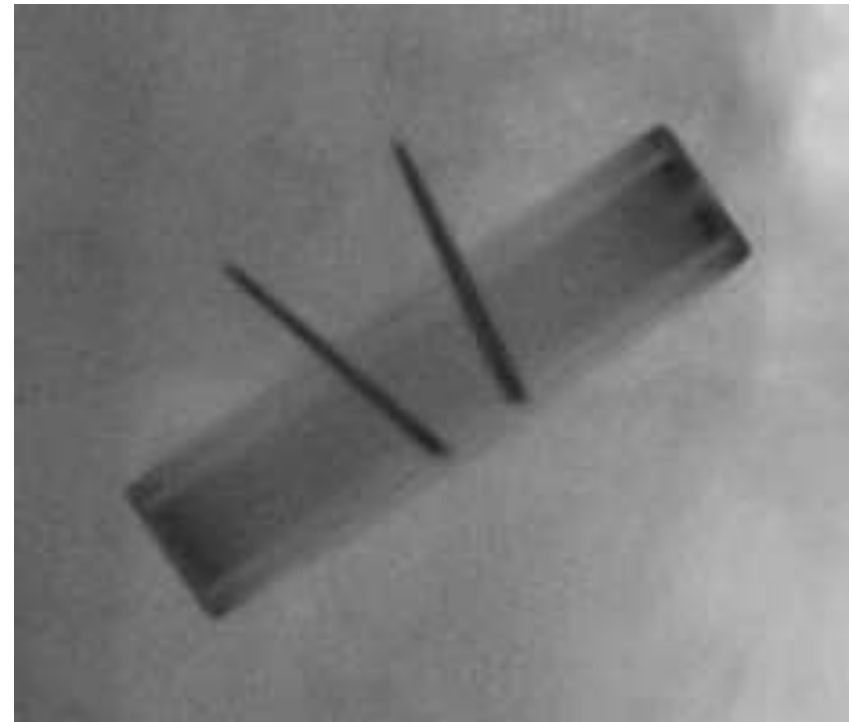
Normální pohyb listů

St. Jude Medical



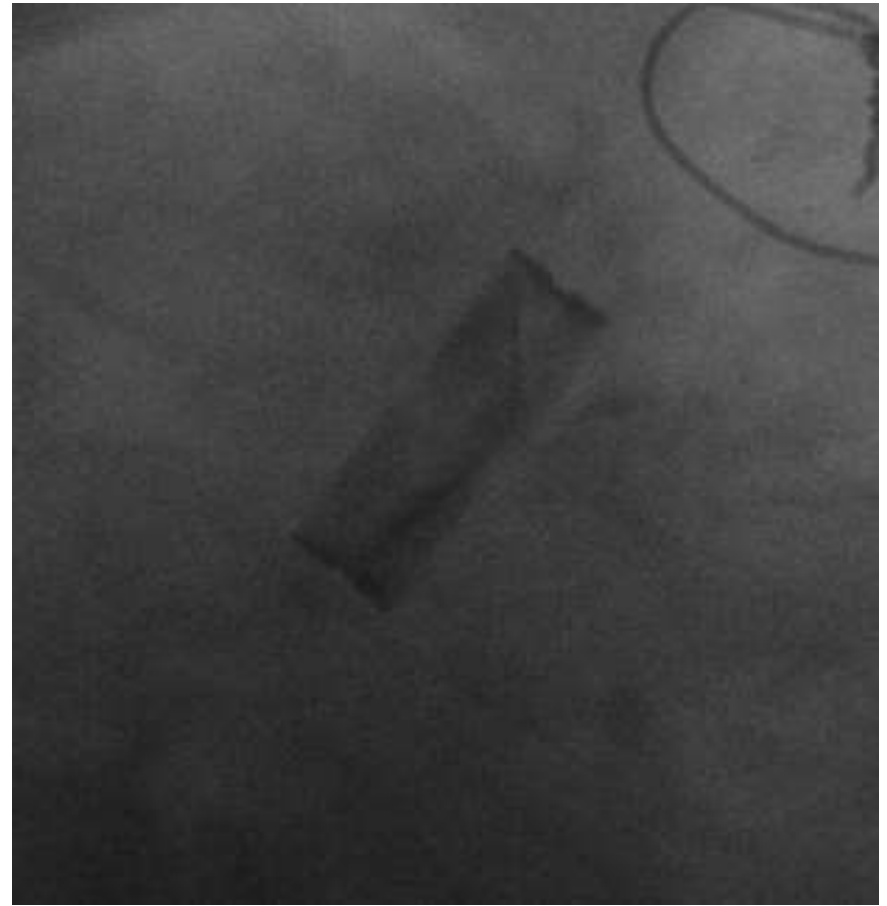
OA 12° CA 120°

Carbomedics



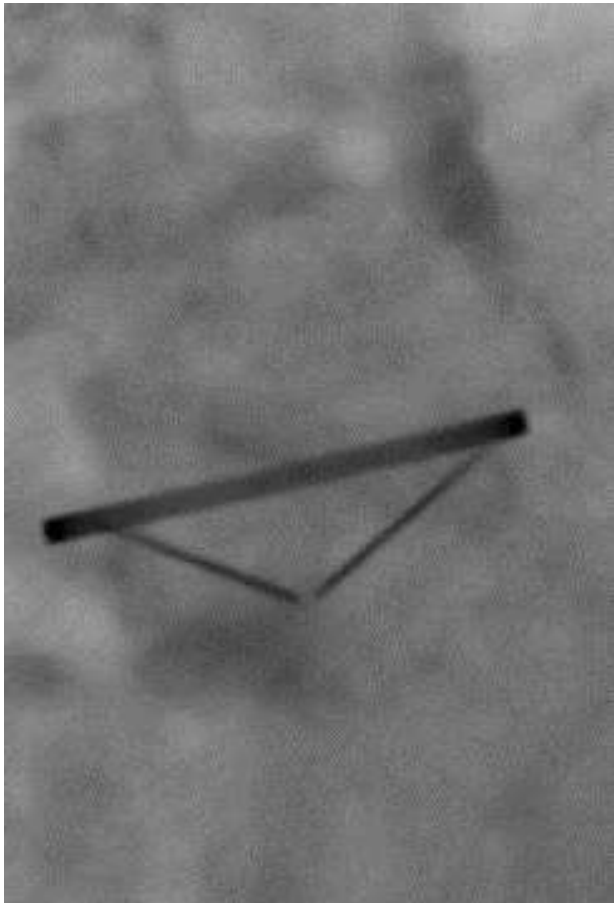
OA 24° CA 130°

Omezený uzávěr (aortální regurgitace)

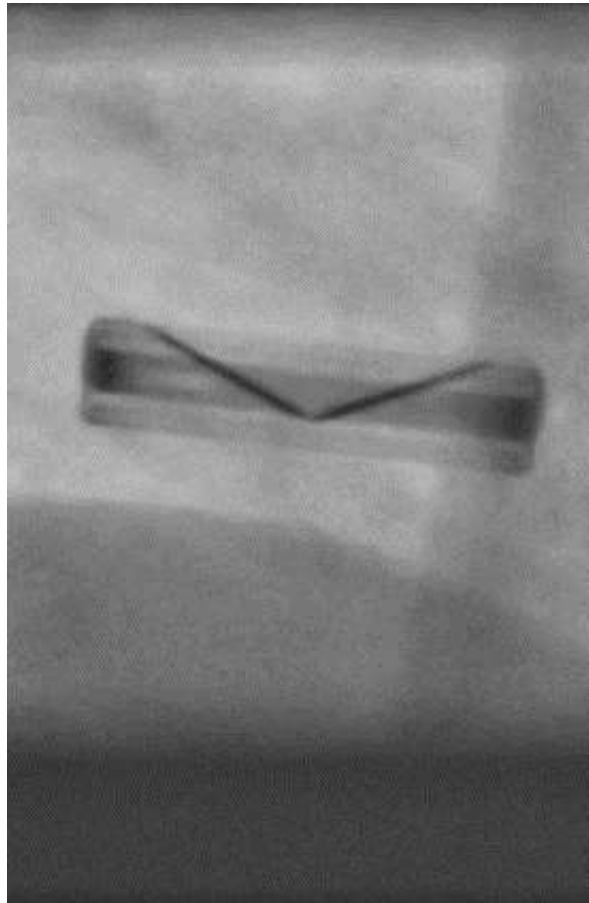


Omezené otevírání

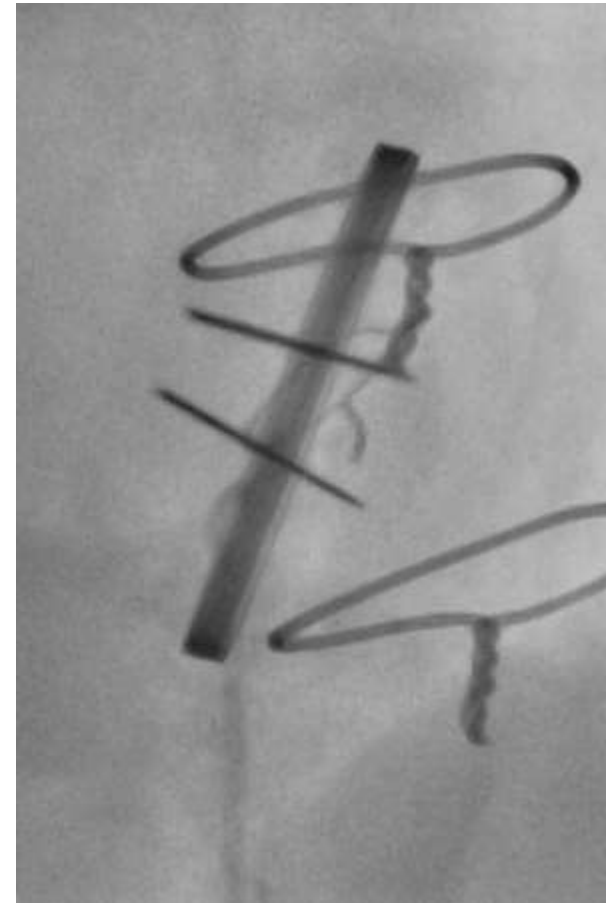
Blokáda listu



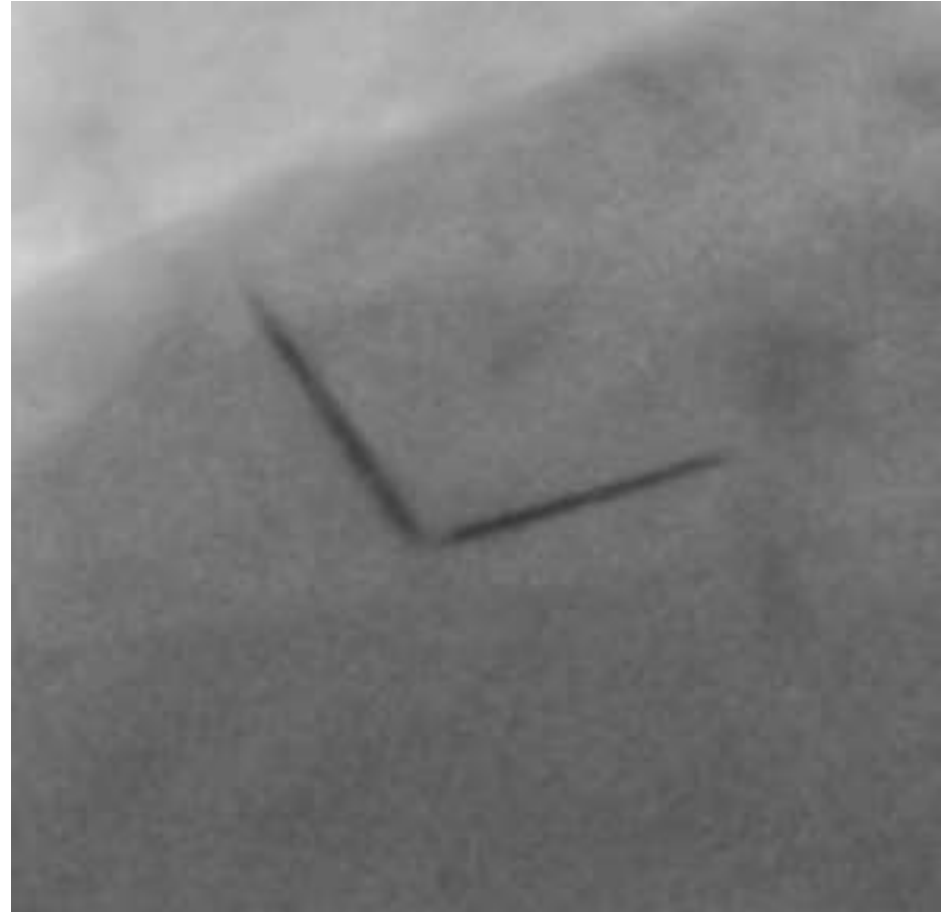
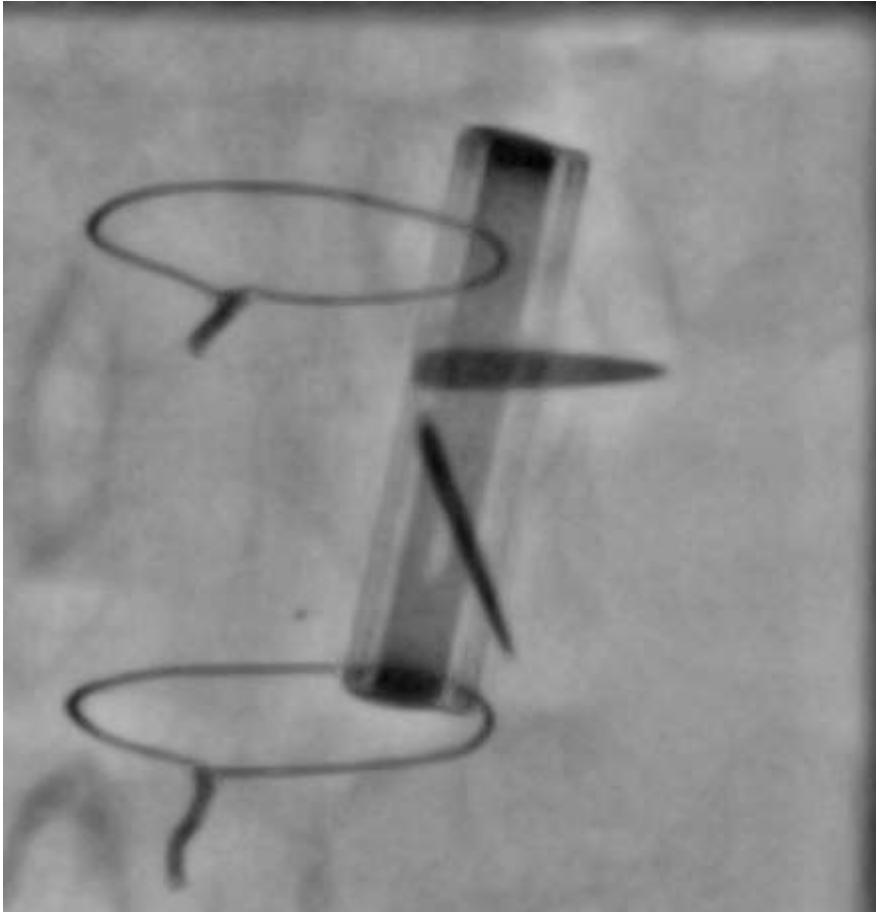
Omezené otevírání



Fibrilace síní

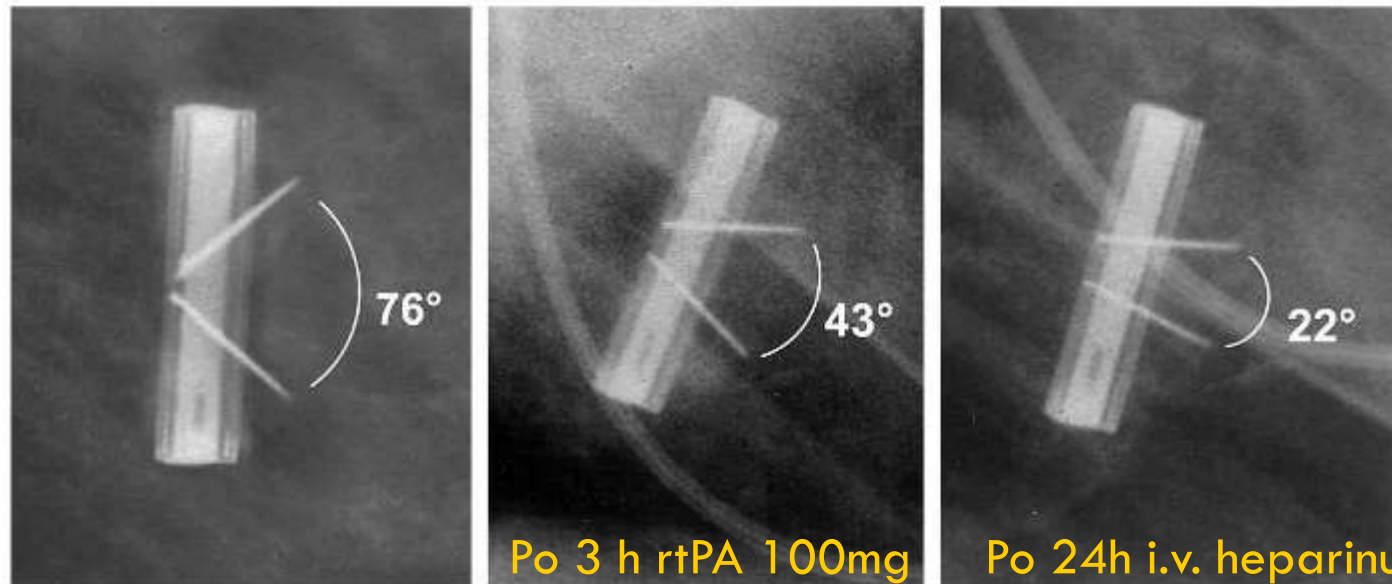


Omezené otevírání (blokáda listu)

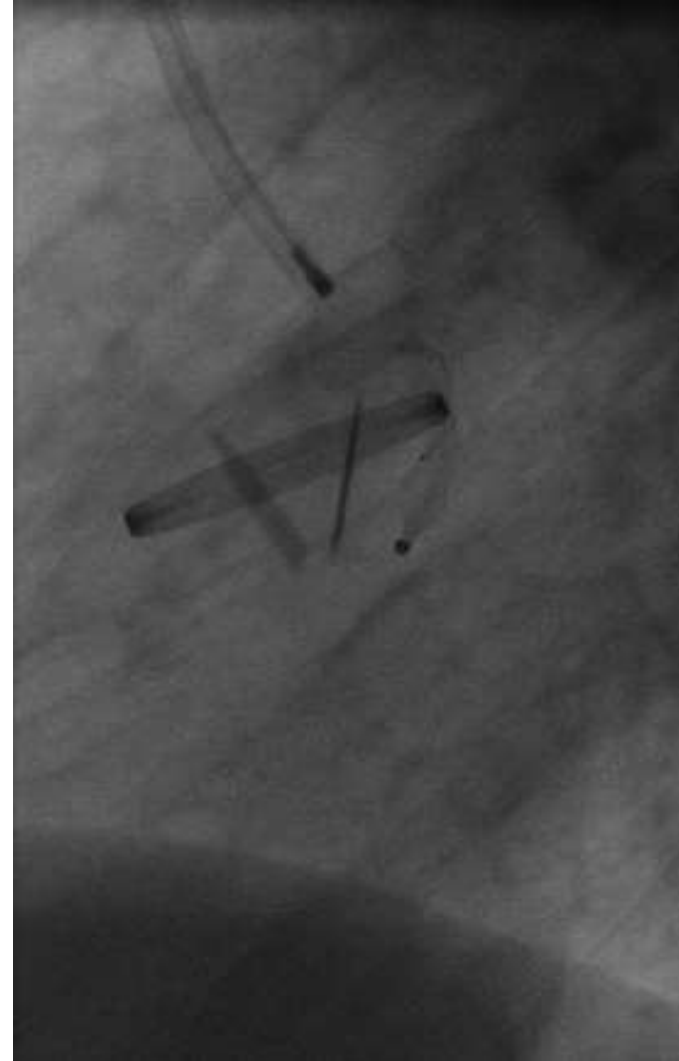
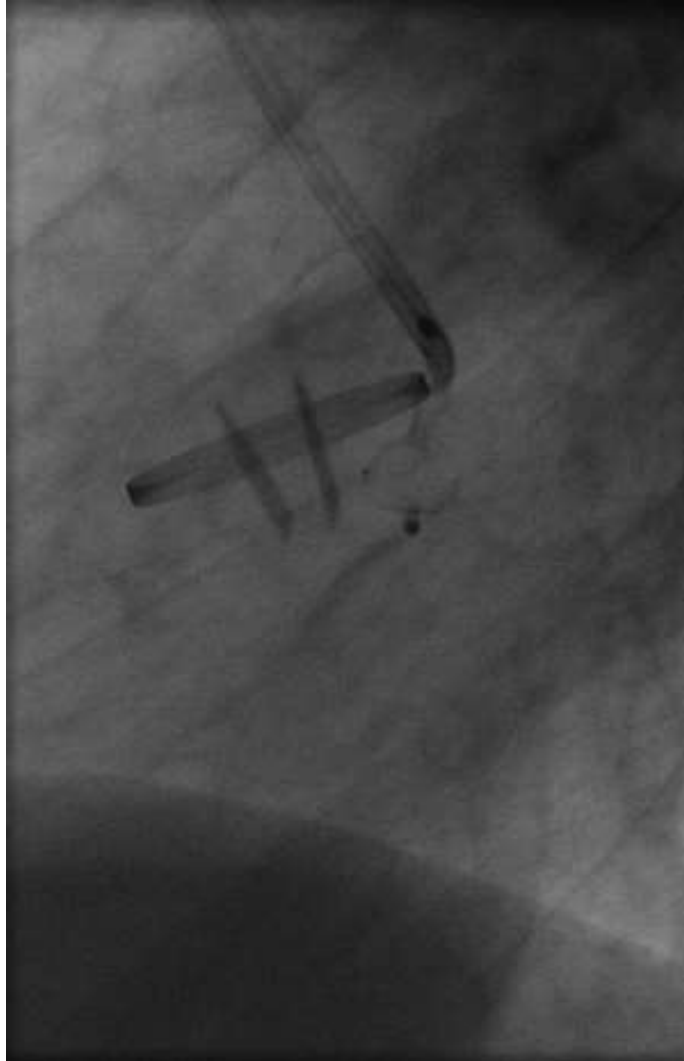


Trombóza mechanické náhrady

- Vzácná komplikace (0,1 - 4%/pacient/rok)
- Může způsobit obstrukci, regurgitaci, embolizaci
- Variabilní klinická manifestace
- Trombolýza představuje alternativu k operaci



Uzávěr paravalvárního leaku



Závěry

- Skiaskopie je jednoduchou a rychlou metodou posouzení funkce MPV
- Pro správné provedení je zásadní znalost typu MPV a normálních hodnot OA a CA
- Poskytuje informace komplementární k echokardiografii
- Musí být interpretována v kontextu klinického obrazu a ostatních zobrazovacích metod

DĚKUJI ZA POZORNOST !

