

# 이상적인 스텐트 선택과 디자인

장 양 수

## Ideal Stent Selection and Design

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Benestent<sup>1)</sup> Stress<sup>2)</sup> stent ition final MLD가 가<sup>12)</sup>  
 , stent 3-5), ste-<sup>13)</sup> Colombo 16  
 nt ticlopidine  
 6-7) stent 16  
 가 가 stent  
 stent stent가  
 . stent  
 stent 8-10), vessel size, lesion final MLD가 가  
 length, final MLD(minimal lumen diameter) . Pal - maz - Schaz stent  
 11), 가<sup>14)</sup>, AVE  
 stent Microll<sup>15)</sup>, Wiktor stent<sup>16)</sup>  
 . Ozaki  
 A) stent가<sup>17)</sup> Less shortening Wall stent  
 stent 18)  
 , B) stent design oversizing balloon  
 .  
 , stent good  
 이상적인 stent 가 갖추어야 할 조건에 apposition  
 따른 기존의 stent 의 특징점 stent  
 가  
 1. Good apposition , complication  
 Stent stent appo-

2. Good radial forces  
 , chronic total occlusion, aorto  
 ostial lesion, calcified lesion stent  
 radial force가 stent가

1) Medium to small vessels  
 recoil vessel size  
 radial force가 <sup>19)</sup> miniCrown, Nir, sm -  
 all vessel BeStent, small vessel Devon stent

2) Chronic total occlusion  
 Plaque radial force가 stent  
 (Palmaz - Schatz )가 <sup>20)</sup>  
 Palmaz - Schatz stent가 PTCA  
 (32% vs 74%).

3) Aorto ostial lesions  
 radial force radio - opacity 가 slot -  
 ted tubular design stent가 <sup>21)</sup>,  
 4mm Palmaz biliary stent, 4mm  
 spiral articulated Palmaz - Schaz stent  
 (good radial support and fair radiopacity), Nir  
 stent with radiopaque version(Nir Royal)

4) Calcified lesion  
 stent  
 final lumen 가 , final lumen  
 recoil radial force 가  
 Palmaz - Schaz stent with spiral arti - culation, Nir,  
 Devon stent, AVE micro II, AVE Gfx, Cross - Flex,  
 ACS - Multilink stent <sup>22)</sup>.

3. Good flexibility  
 3mm ,  
 , proximal tortuosity, 45 acute ang -  
 ulation flexibility가 stent가

1) Vessels smaller than 3.0mm  
 distal lesion fle -

xibility가  
 radial force . Palmaz - Schatz  
 stent 23%, 9 cells Nir stent 23%

2) Acute closure and threatened closure  
 Flexible  
 premount가 가 G - RII<sup>23)</sup>, AVE mic -  
 roII<sup>24)</sup>, AVE Gfx, Cross Flex II stent가

3) Proximal tortuosity or acute angulat -  
 ion(45°)  
 Palmaz - Schatz stent edge dissection  
 G - R, Wiktor, Cordis stent coil  
 stent vascular geometry AVE  
 Gfx, ACS multilink

4. Less shortening  
 Shortening stent deployment  
 가 , osteal lesion, tortuous  
 lesion shortening stent  
 . Wallstent 가 (30%) Cor -  
 dis 10%, Cross Flex 5%, Crown 5%, ACS multilink  
 3% , AVE MicroII, Gfx, Nir, Pa -  
 lmaz - Schatz, G - R II stent shorten -  
 ing

5. Good metal coverage  
 Protruding plaque, dissection flap ,  
 strut cell ,  
 plaque dissection flap  
 cell  
 . stent welding  
 spine coil stent angled lesion  
 unit 가 bare area

Colombo 163 lesions(45angle)  
 overall restenosis rate 33%, Palmaz - Schaz 21%  
 , Micro II stent  
 45 bend

lesion .  
 Curved lesion G - R II, Wiktor - I,  
 Crossflex, AVE micor II flexible bend  
 lesion ,

## 6. Possible side branch approach

Bifurcation lesion sidebranch occlusion  
 G - R stent <sup>25)</sup> , pal -  
 maz - Schatz 10% <sup>26)</sup> .  
 G - R stent side branch 가  
 wire balloon G - R stent , coil  
 side branch jail strut  
 가 side branch PTCA .  
 slotted type stent side branch  
 jail strut가 balloon entrapment  
 side branch PTCA low  
 profile balloon . side br -  
 anch jail cell 가  
 stent T - stent, Y - stent

Palmaz - Schatz version Crown  
 Palmaz - Schatz stent cells Pa -  
 Imaz - Schatz stent straight sinuso -  
 idal jailed side branch catheter가  
 Palmaz - Schatz stent

bifurcation lesion

AVE MicorII stent MiniCrown stent  
 low profile stent side branch  
 occlusion stent strut  
 jailed side branch stent  
 . Kissing balloon technique  
 side branch stent strut balloon ru -  
 pture가 AVE Gfx stent sharp  
 edge가 radial support가 moderate  
 visible .

## 7. Radiopacity

Angio, Cordis, Cross FlexII, Wiktor stent  
 high radiopaque , ACT one, AVE micorII, AVE

Gfx, Wallstent moderate radiopaque G -  
 RII, Palmaz - Schatz, Nir, Davon stent low  
 radiopaque . bifurcation lesion aorto  
 ostial lesions radiopaque stent

## 8. Optimal coverage in the long lesion

Saphenous vein grafts long lesion  
 cover wallstent, Palmaz - Schatz, Cr -  
 own, 9cells Nir stent wall  
 stent 가 long diffuse lesions  
 Yokoi <sup>27)</sup> 20mm  
 long lesion multiple Palmaz - Schatz stent,  
 G - R stent, less shortening wall stent  
 42%, 35%, 56% 3  
 가 <sup>28)</sup> ,  
 20mm Micro II, Wall, GR - II  
 stent  
 가  
 suboptimal result  
 stenting focal stenting in the long  
 lesion .

## 이상적인 Stent Design

stent 1) design,  
 2) material, 3) surface 3가  
 . stent design  
 . 1993 Fontaine <sup>29)</sup> stent ind -  
 uced neoin - timal hyperplasia flexible rigid  
 stent , Rogers Edelman <sup>30)</sup>  
 slotted tu -  
 be type corrugated ring type injury  
 score가 , ,  
 , Carter <sup>31)</sup>  
 multicellular box type slotted tube type  
 multicellualr box type injury score가  
 60% ,  
 slotted tube type vascular geometry  
 design

Stent material 가  
 stainless steel 가 mat-  
 erial Scott <sup>32)</sup>  
 shunt stainl-  
 ess steel tantalum 가  
 , Barth <sup>33)</sup> lower hoop stre-  
 ngth higher profile tantalum stent  
 stainless steel recoil  
 . Sheth <sup>13)</sup> slotted nitinol  
 slotted stainless steel  
 thrombogenicity vascular injury  
 nitinol , Sch-  
 urman <sup>34)</sup> nitinol, palmaz wallstent  
 가 stent  
 Stent surface  
 가 . Wang <sup>35)</sup> electro-  
 chemical polishing roughness  
 , Hehrlein <sup>36)</sup> , ,  
 stent , high charge  
 local delivery 가  
 polymer coating <sup>37-40)</sup>  
 stent  
 가  
 , stent design  
 가 , stent ,

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