

## AKUT KORONER SENDROMLA PREZENTE OLAN HASTALARA YAPILAN KORONER ANJİYOGRFİDE TESPİT EDİLEN BİFURKASYON LEZYONLARINA VAKA EŞLİĞİNDE YAKLAŞIM

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### GİRİŞ

Akut koroner sendrom dünyada en sık ölüm nedenlerinden biridir. Bilindiği üzere akut koroner sendromlar; kardiyojenik şoktan unstable angina pectoris (USAP)'a kadar geniş bir yelpazeye sahiptir. Bu hastalara uygulanan erken koroner anjiyografi ve erken koroner girişim mortalite ve sonrasında gelişmesi olası olayların görülme ihtimalini azaltmaktadır (1,2).

Daha önceden yapılan çalışmalarda çoklu damar hastalığı olan ve özellikle kardiyojenik şok ve akut miyokard enfarktüsü ile başvuran hastalarda komplet revaskülarizasyon önerilmekteydi. Ancak günümüzde yapılan çalışmalar stabil olmayan akut koroner sendromlarda mümkün olduğunca sorumlu lezyona girişimin yapılması, diğer lezyonların daha sonraki bir seansa bırakılması gerektiğini göstermektedir. Mevcut durumda kardiyojenik şok ve yüksek riskli ST elevasyonlu miyokard enfarktüsü (STEMI)'nde sorumlu lezyonu revaskülarize edip, sonraki lezyonları başka bir seansta revaskülarize etmek genel uygulama şeklinde yerini almıştır (3).

Yine yapılan çalışmalarda akut koroner sendromlarda tek stent stratejisinin çift stratejisine oranla mortalite ve kardiyovasküler olay açısından daha düşük riskli olduğu gösterilmiştir. Ancak,

düşük riskli STEMI (stabil STEMI), stabil non-ST elevasyonlu miyokard enfarktüsü (NSTEMI) ve USAP ile prezente olan hastalarda stabil olduklarından dolayı yan dal lezyonlarına müdahale düşünülebilir. Hasta bazlı girişim planlanması bu durumda önem arz etmektedir (4,5,6).

### OLGU 1:

Son 30 dakikadır başlayan tipik göğüs ağrısı nedeniyle acile başvuran ve hipertansiyon (HT) öyküsü olan 72 yaşında kadın hastanın çekilen 12 derivasyonlu elektrokardiyografi (EKG)'sinde göğüs derivasyonları (V1-6) ve D1, AVL'de ST elevasyonu saptanması üzerine Anterior STEMI tanısıyla antiagregan ve antikoagulan tedavisi başlanarak primer girişim amacıyla anjiyografi laboratuvarına alındı. Koroner anjiyografi (KAG) işlemi femoral yoldan 6F kateter ile yapıldı. KAG'da sağ koroner arter (RCA): %80-90, non-dominant, sol ön inen arter (LAD): %100; sirkumfleks arter (CX): plaklı izlendi (Figür 1). LAD lezyonuna perkütan koroner girişim (PCI) planlandı. 6F guiding kateter ile left main coronary artery (LMCA)'ye oturulduktan sonra LAD lezyon floppy guidewire ile geçildi. 2,0\*20 mm balon ile percutaneous transluminal coronary angioplasty (PTCA) sonrası 3,0\*22 drug eluting stent (DES) lezyona implante

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## KAYNAKÇA:

- Switaj TL, Christensen SR, Brewer DM. Acute Coronary Syndrome: Current Treatment. *Am Fam Physician*. 2017 Feb 15;95(4):232-240.
- Gach O<sup>1</sup>, El HZ<sup>2</sup>, Lancellotti P<sup>3</sup>. [Acute coronary syndrome]. *Rev Med Liege*. 2018 May;73(5-6):243-250.
- Souza Júnior JM<sup>1</sup>, Kulchetscki RM<sup>1</sup>, Linhares Filho JPP<sup>2</sup>, Lima EG<sup>3</sup>, Serrano Junior CV<sup>2</sup>. CULP-RIT-SHOCK study. *Rev Assoc Med Bras* (1992). 2018 Sep;64(9):783-786. doi: 10.1590/1806-9282.64.09.783.
- Kim MC<sup>1</sup>, Ahn Y<sup>1</sup>, Sun Sim D<sup>1</sup>, Joon Hong Y<sup>1</sup>, Han Kim J<sup>1</sup>, Ho Jeong M<sup>1</sup>, Gwon HC<sup>2</sup>, Kim HS<sup>3</sup>, Rha SW<sup>4</sup>, Yoon JH<sup>5</sup>, Jang Y<sup>6</sup>, Tahk SJ<sup>7</sup>, Seung KB<sup>8</sup>. Comparison of the planned one- and elective two-stent techniques in patients with coronary bifurcation lesions with or without acute coronary syndrome from the COBIS II Registry. *Catheter Cardiovasc Interv*. 2018 Nov 15;92(6):1050-1060. doi: 10.1002/ccd.27551. Epub 2018 Mar 24.
- Nairooz R<sup>1</sup>, Saad M<sup>1</sup>, Elgendy IY<sup>2</sup>, Mahmoud AN<sup>2</sup>, Habash F<sup>3</sup>, Sardar P<sup>4</sup>, Anderson D<sup>2</sup>, Shavelle DM<sup>5</sup>, Abbott JD<sup>6</sup>. Long-term outcomes of provisional stenting compared with a two-stent strategy for bifurcation lesions: a meta-analysis of randomised trials. *Heart*. 2017 Sep;103(18):1427-1434. doi: 10.1136/heartjnl-2016-310929. Epub 2017 Mar 17.
- Colombo A, Bramucci E, Sacca S, Violini R, Lettieri C, Zanini R, Sheiban I, Paloscia L, Grube E, Schofer J, Bolognese L, Orlandi M, Niccoli G, Latib A, Airolidi F. Randomized study of the crush technique versus provisional side-branch stenting in true coronary bifurcations. The CACTUS (coronary bifurcations: application of the crushing technique using sirolimus stents) study. *Circulation* 2009;119:71-78.
- Levine GN, Bates ER, Blakenship JC, Bailey SR, Bittl JA, Cercek B, Chambers CE, Ellis SG, Guyton RA, Hollenberg SM, Khot UN, Lange RA, Mauri L, Mehran R, Moussa ID, Mukherjee D, Nallamothu BK, Ting HH. 2011 ACCF/AHA/SCAI Guideline for Percutaneous Coronary Intervention. A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. *J Am Coll Cardiol* 2011;24:e44-122.
- Windecker S, Kolh P, Alfonso F, Collet JP, Cremer J, Falk V, Filippatos G, Hamm C, Head SJ, Juni P, Kappetein AP, Kastrati A, Knuuti J, Landmesser U, Laufer G, Neumann FJ, Richter DJ, Schauerte P, Sousa Uva M, Stefanini GG, Taggart DP, Torracca L, Valgimigli M, Wijns W, Witkowski A. 2014 ESC/EACTS Guidelines on myocardial revascularization: The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS) Developed with the special contribution of the European Association of Percutaneous Cardiovascular Interventions (EAPCI). *Eur Heart J* 2014;35: 2541-2619.
- Azzalini L<sup>1</sup>, Poletti E<sup>2</sup>, Lombardo F<sup>2</sup>, Laricchia A<sup>2</sup>, Beneduce A<sup>2</sup>, Moscardelli S<sup>2</sup>, Bellini B<sup>2</sup>, Maccagni D<sup>2</sup>, Cappelletti A<sup>3</sup>, Ancona MB<sup>2</sup>, Carlino M<sup>2</sup>, Chieffo A<sup>2</sup>, Colombo A<sup>2</sup>, Montorfano M<sup>2</sup>. Risk of contrast-induced nephropathy in patients undergoing complex percutaneous coronary intervention. *Int J Cardiol*. 2019 Sep 1;290:59-63. doi: 10.1016/j.ijcard.2019.04.043. Epub 2019 Apr 14.
- Sindberg B<sup>1</sup>, Aagren Nielsen CG<sup>1</sup>, Hestbjerg Poulsen M<sup>1</sup>, Böhme Rasmussen M<sup>1</sup>, Carstensen S<sup>1</sup>, Thim T<sup>1</sup>, Jakobsen L<sup>1</sup>, Thorsted Sørensen J<sup>1</sup>, Haastrup B<sup>2</sup>, Maare Søndergaard H<sup>2</sup>, Mæng M<sup>1</sup>, Juhl Terkelsen C<sup>1</sup>. Randomized Comparison of Terumo® Coated Slender™ versus Terumo® Noncoated Traditional Sheath during Radial Angiography or Percutaneous Coronary Intervention. *J Interv Cardiol*. 2019 Mar 4;2019:7348167. doi: 10.1155/2019/7348167.
- Damluji AA<sup>1</sup>, Nelson DW<sup>2</sup>, Valgimigli M<sup>3</sup>, Windecker S<sup>3</sup>, Byrne RA<sup>4</sup>, Cohen F<sup>5</sup>, Patel T<sup>6</sup>, Brilakis ES<sup>7</sup>, Banerjee S<sup>8</sup>, Mayol J<sup>9</sup>, Cantor WJ<sup>10</sup>, Alfonso CE<sup>11</sup>, Rao SV<sup>12</sup>, Moscucci M<sup>13</sup>, Cohen MG<sup>14</sup>. Transfemoral Approach for Coronary Angiography and Intervention: A Collaboration of International Cardiovascular Societies. *JACC Cardiovasc Interv*. 2017 Nov 27;10(22):2269-2279. doi: 10.1016/j.jcin.2017.08.035.
- Ikari Y<sup>1</sup>, Nagaoka M, Kim JY, Morino Y, Tanabe T. The physics of guiding catheters for the left coronary artery in transfemoral and transradial interventions. *J Invasive Cardiol*. 2005 Dec;17(12):636-41.
- Chatterjee A<sup>1</sup>, Brott BC<sup>2</sup>, Foley R<sup>3</sup>, Alli O<sup>1</sup>, Sasse M<sup>1</sup>, Ahmed M<sup>1</sup>, Al Solaiman F<sup>1</sup>, Reddy G<sup>1</sup>, Ather S<sup>1</sup>, Leesar MA<sup>4</sup>. Safety of hydrophilic guidewires used for side-branch protection during stenting and proximal optimization technique in coronary bifurcation lesions. *Cardiovasc Revasc Med*. 2016 Oct - Nov;17(7):456-462. doi: 10.1016/j.carrev.2016.04.006. Epub 2016 Apr 22.
- Zimarino M<sup>1,2</sup>, Barbato E<sup>3</sup>, Nakamura S<sup>4</sup>, Radico F<sup>1</sup>, Di Nicola M<sup>5</sup>, Briguori C<sup>6</sup>, Gil RJ<sup>7</sup>, Kanic V<sup>8</sup>, Perfetti M<sup>2</sup>, Pellicano M<sup>3,9</sup>, Mairic K<sup>10</sup>, Stankovic G<sup>11</sup>; European Bifurcation Club. The impact of the extent of side branch disease on outcomes following bifurcation stenting. *Catheter Cardiovasc Interv*. 2020 Mar 9. doi: 10.1002/ccd.28842.
- Kumsars I<sup>#1</sup>, Holm NR<sup>#2</sup>, Niemelä M<sup>3</sup>, Erglis A<sup>4</sup>, Kervinen K<sup>3</sup>, Christiansen EH<sup>2</sup>, Maeng M<sup>2</sup>, Dombrovskis A<sup>1</sup>, Abraitis V<sup>5</sup>, Kibarskis A<sup>5</sup>, Trovik T<sup>6</sup>, Latkovskis G<sup>4</sup>, Sondore D<sup>1</sup>, Narbutė I<sup>4</sup>, Terkelsen CJ<sup>2</sup>, Eskola M<sup>7</sup>, Romppanen H<sup>8</sup>, Laine M<sup>9</sup>, Jensen LO<sup>10</sup>, Pietila M<sup>11</sup>, Gunnes P<sup>12</sup>, Hebsgaard L<sup>2</sup>, Frobert O<sup>13</sup>, Calais F<sup>13</sup>, Hartikainen J<sup>8</sup>, Aarøe J<sup>14</sup>, Ravkilde J<sup>14</sup>, Engstrøm T<sup>15</sup>, Steigen TK<sup>16</sup>, Thuesen L<sup>14</sup>, Lassen JF<sup>2</sup>; Nordic Baltic bifurcation study group. Randomised comparison of provisional side branch stenting versus a two-stent strategy for treatment of true coronary bifurcation lesions involving a large side branch: the Nordic-Baltic Bifurcation Study IV. *Open Heart*. 2020 Jan 19;7(1):e000947. doi: 10.1136/openhrt-2018-000947. eCollection 2020.
- Yurtdaş M<sup>1</sup>, Asoğlu R<sup>2</sup>, Özdemir M<sup>3</sup>, Asoğlu E<sup>4</sup>. An Upfront Two-Stent Strategy for True Coronary Bifurcation Lesions with A Large Side Branch in Acute Coronary Syndrome: A Two-Year Follow-Up Study. *Medicina (Kaunas)*. 2020 Feb 29;56(3). pii: E102. doi: 10.3390/medicina56030102.
- Mohamed MO, Mamas MA, Nagaraja V, Alraies MC, Lamelas P, Tzemos N, Ayan D, Lavi S, Bagur R<sup>1</sup>. Dedicated Bifurcation Stents for Coronary Bifurcati-

- on Lesions: A Systematic Review and Meta-Analysis of Randomized-Controlled Trials. *J Invasive Cardiol*. 2019 Dec;31(12):E344-E355.
18. Song PS, Ryu DR, Choi SH, Yang JH, Song YB, Hahn JY, Choi JH, Seung KB, Park SJ, Gwon HC. Impact of acute coronary syndrome classification and procedural technique in clinical outcomes in patients with coronary bifurcation lesions treated with drug-eluting stents. *Clin Cardiol* 2012;35:610–618.
  19. Gil RJ<sup>1</sup>, Pawłowski T<sup>1</sup>, Legutko J<sup>2</sup>, Lesiak M<sup>3</sup>, Witkowski A<sup>4</sup>, Gąsior M<sup>5</sup>, Kern A<sup>6</sup>, Bil J<sup>1</sup>. Rationale and design of the randomized, multicenter, open-label, controlled POLBOS 3 trial aimed to compare regular drug-eluting stents versus the dedicated coronary bifurcation sirolimus-eluting BiOSS LIM C stent. *Medicine (Baltimore)*. 2019 Apr;98(14):e15106. doi: 10.1097/MD.00000000000015106.
  20. Biolè C<sup>1</sup>, Huczek Z<sup>2</sup>, Nuñez-Gil I<sup>3</sup>, Boccuzzi G<sup>4</sup>, Autelli M<sup>5</sup>, Montefusco A<sup>5</sup>, Trabattoni D<sup>6</sup>, Ryan N<sup>3</sup>, Venuti G<sup>7</sup>, Imori Y<sup>8</sup>, Takano H<sup>8</sup>, Matsuda J<sup>8</sup>, Shimizu W<sup>8</sup>, Muscoli S<sup>9</sup>, Montabone A<sup>10</sup>, Wojakowski W<sup>11</sup>, Rognoni A<sup>12</sup>, Helft G<sup>13</sup>, Gallo D<sup>14</sup>, Parma R<sup>2</sup>, De Luca L<sup>15</sup>, Figini F<sup>16</sup>, Mitomo S<sup>17</sup>, Pennone M<sup>5</sup>, Mattesini A<sup>10</sup>, Templin C<sup>18</sup>, Quadri G<sup>19</sup>, Wańha W<sup>11</sup>, Cerrato E<sup>19</sup>, Smolka G<sup>11</sup>, Protasiewicz M<sup>20</sup>, Kuliczkowski W<sup>20</sup>, Rolfo C<sup>19</sup>, Cortese B<sup>21</sup>, Capodanno D<sup>7</sup>, Chieffo A<sup>17</sup>, Morbiducci U<sup>14</sup>, Iannaccone M<sup>5</sup>, Gili S<sup>18</sup>, di Mario C<sup>10</sup>, D'Amico M<sup>5</sup>, Romeo F<sup>22</sup>, Lüscher TF<sup>18</sup>, Sheiban I<sup>16</sup>, Escaned J<sup>3</sup>, Varbella F<sup>19</sup>, D'Ascenzo F<sup>5</sup>. Daily risk of adverse outcomes in patients undergoing complex lesions revascularization: A subgroup analysis from the RAIN-CARDIOGROUP VII study (veRy thin stents for patients with left mAIn or bifurcation in real life). *Int J Cardiol*. 2019 Sep 1;290:64-69. doi: 10.1016/j.ijcard.2019.03.038. Epub 2019 Mar 22.
  21. Zhang D<sup>1</sup>, He Y<sup>1,2</sup>, Yan R<sup>1,3</sup>, Yin D<sup>1</sup>, Feng L<sup>1</sup>, Xu B<sup>1</sup>, Yang Y<sup>1</sup>, Zhu C<sup>1</sup>, Dou K<sup>1</sup>. A novel technique for coronary bifurcation intervention: Double rewire crush technique and its clinical outcomes after 2 years of follow-up. *Catheter Cardiovasc Interv*. 2019 Feb 15;93(S1):851-858. doi: 10.1002/ccd.28066. Epub 2019 Jan 2.
  22. Kim TH, Lee HJ, Jang HJ, Kim JS, Park JS, Choi RK, Choi YJ, Shim WH, Ro YM, Yu CW, Kwon SW. Impact of final kissing balloon inflation after simple stent implantation for the treatment of nonleft main true coronary bifurcation lesions in patients with acute coronary syndrome. *Int J Cardiol* 2014;177:907–911.
  23. Collet C<sup>1,2</sup>, Mizukami T<sup>3</sup>, Grundeken MJ<sup>1,3</sup>. Contemporary techniques in percutaneous coronary intervention for bifurcation lesions. *Expert Rev Cardiovasc Ther*. 2018 Oct;16(10):725-734. doi: 10.1080/14779072.2018.1523717. Epub 2018 Oct 3.
  24. Sawaya FJ<sup>1</sup>, Lefèvre T<sup>1</sup>, Chevalier B<sup>1</sup>, Garot P<sup>1</sup>, Hovasse T<sup>1</sup>, Morice MC<sup>1</sup>, Rab T<sup>2</sup>, Louvard Y<sup>3</sup>. Contemporary Approach to Coronary Bifurcation Lesion Treatment. *JACC Cardiovasc Interv*. 2016 Sep 26;9(18):1861-78. doi: 10.1016/j.jcin.2016.06.056.
  25. Zimarino M<sup>1</sup>, Briguori C<sup>2</sup>, Amat-Santos IJ<sup>3</sup>, Radico F<sup>4</sup>, Barbato E<sup>5</sup>, Chieffo A<sup>6</sup>, Cirillo P<sup>7</sup>, Costa RA<sup>8</sup>, Erglis A<sup>9</sup>, Gamra H<sup>10</sup>, Gil RJ<sup>11</sup>, Kanic V<sup>12</sup>, Kedev SA<sup>13</sup>, Maddestra N<sup>14</sup>, Nakamura S<sup>15</sup>, Pellicano M<sup>16</sup>, Petrov I<sup>17</sup>, Strozzi M<sup>18</sup>, Tesorio T<sup>19</sup>, Vukcevic V<sup>20</sup>, De Caterina R<sup>4</sup>, Stankovic G<sup>20</sup>; EuroBifurcation Club. Mid-term outcomes after percutaneous interventions in coronary bifurcations. *Int J Cardiol*. 2019 May 15;283:78-83. doi: 10.1016/j.ijcard.2018.11.139. Epub 2018 Dec 2.
  26. Lassen JF<sup>1</sup>, Burzotta F, Banning AP, Lefèvre T, Darremont O, Hildick-Smith D, Chieffo A, Pan M, Holm NR, Louvard Y, Stankovic G. Percutaneous coronary intervention for the left main stem and other bifurcation lesions: 12th consensus document from the European Bifurcation Club. *EuroIntervention*. 2018 Jan 20;13(13):1540-1553. doi: 10.4244/EIJ-D-17-00622.
  27. Zheng, W.; Li, Y.; Tian, J.; Li, L.; Xie, L.; Mao, Q.; Tong, W.; Zhou, D.; Azzalini, L.; Zhao, X. Effects of Ticagrelor versus Clopidogrel in Patients with Coronary Bifurcation Lesions Undergoing Percutaneous Coronary Intervention. *BioMed Res. Int*. 2019, 2019.
  28. Wallentin, L.; Becker, R.C.; Budaj, A.; Cannon, C.P.; Emanuelsson, H.; Held, C.; Horrow, J.; Husted, S.; James, S.; Katus, H. Ticagrelor versus clopidogrel in patients with acute coronary syndromes. *N. Engl. J. Med*. 2009, 361, 1045–1057.