## 4 Drug-eluting Stent / lung mass surgery (Peleg, Tu)

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Cardiac patients who undergo implantation of drug-eluting stent are placed on dual anti-platelet therapy[[1]](#footnote-1): aspirin + P2Y12 inhibitor for 12 months. Note that at this stage, the patient is not at high risk for bleeding. Three P2Y12 inhibitors are indicated: Ticagrelor, Prasugrel, or Clopidogrel.

When a patient with high cardiovascular risk needs to undergo a vital surgical procedure that cannot be postponed till 12 months after the stent implantation, he is also at high risk for surgical bleeding.

According to the guideline on Perioperative Antiplatelet Therapy[[2]](#footnote-2), aspirin should be maintained and clopidogrel needs to be stopped five days before surgery. As explained in this guideline “After cessation of aspirin or clopidogrel, platelet aggregation returns to baseline in five days.” This reduces the risk of bleeding during surgery, due to decreased platelet aggregation.

Possible bridging therapy (substitution of clopidogrel) three to five days before surgery with intravenous tirofiban (Aggrastat) or eptifibatide (Integrilin) is indicated2,[[3]](#footnote-3). In line with2, clopidogrel is to be withdrawn 5 days before surgery, and tirofiban started 48 h later, and continued until 4 h before surgery. After surgery, either clopidogrel or tirofiban are resumed as soon as possible, depending on the expected degree of post operative bleeding.

After the operation, antiplatelet therapy is resumed within the first 12 to 24 hours; clopidogrel therapy is reinitiated with a 300-mg loading dose, which reduces the time to achieve maximal platelet inhibition to four to six hours and decreases the risk of hyporesponsiveness from competition of other drugs with hepatic cytochromes2.

**Patient case:** Mr. Grant is a 73 year old male, height 183 cm, weight 80 kg, BMI: 23.9.

**Current medications**: Aspirin, Clopidogrel

**Current problem:** MI and 2 months post Drug-eluting Stent surgery

**New problem:** Lung mass

**Management scenario**: Patient had MI and the doctors decided to implant a drug-eluting stent. Accordingly, the patient was placed on dual anti-platelet therapy: aspirin + clopidogrel for 12 months.

Two months after the stent implantation, the patient was diagnosed with a lung mass and surgery is indicated and cannot be postponed till dual antiplatelet therapy is completed.

1. 2017 ESC focused update on dual antiplatelet therapy in coronary artery disease developed in collaboration with EACTS. European Heart Journal (2018) 39, 213–254; doi:10.1093/eurheartj/ehx419, p. 233 first row of table and Figure 4 – green box on the right [↑](#footnote-ref-1)
2. Perioperative Antiplatelet Therapy (2010). P G Chassot, C Marcucci, A delabays, D R Spahn, SPAHN. Am Fam Physician. 2010 Dec 15;82(12):1484-1489. Table 3 bottom right. [↑](#footnote-ref-2)
3. Urgent surgery in patients with a recently implanted coronary drug-eluting stent: a phase II study of ‘bridging’ antiplatelet therapy with tirofiban during temporary withdrawal of clopidogrel. S. Savonitto, M. D’Urbano, M. Caracciolo, F. Barlocco, G. Mariani, M. Nichelatti, S. Klugmann and S. De Servi. British Journal of Anaesthesia 104 (3): 285–91 (2010). doi:10.1093/bja/aep373, last paragraph. [↑](#footnote-ref-3)