Use of OCT in Follow Up of BVS in Kawasaki's Disease

Muhammad Ahsan Arshad
Aniket Puri
Christchurch Hospital
New Zealand

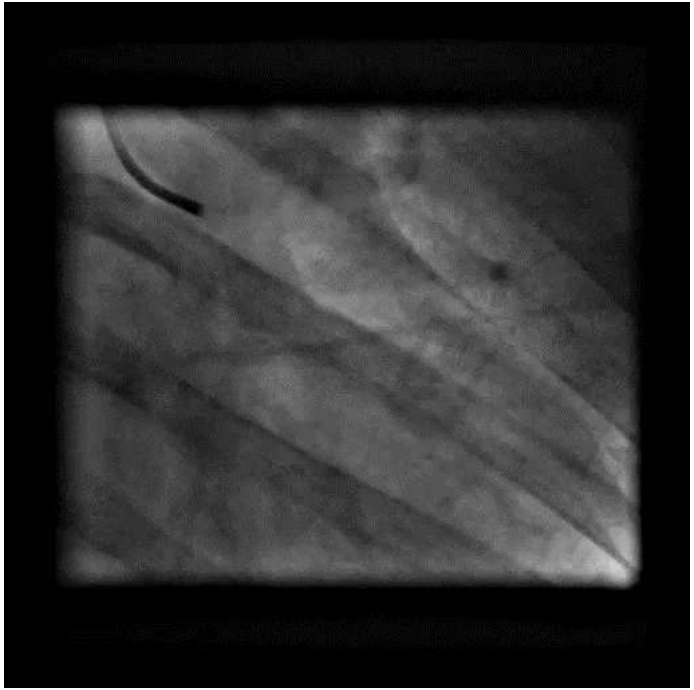
Case Report of Mr LD

- 18 years old, male
- Diagnosed as Kawasaki's Disease in 1997 (4 month)
- LCx lesion first seen in 2002 (5 years)
- Severe proximal LCx stenotic lesion, FFR positive (2013)
- Mild aneurysmal lesion in proximal LCx
- 3.5 x 18mm Bioresorbable Vascular Scaffold (Abbott) deployed after adequate pre-dilation with 3.5 x 15 NC balloon.
- 1 year Follow up with OCT imaging

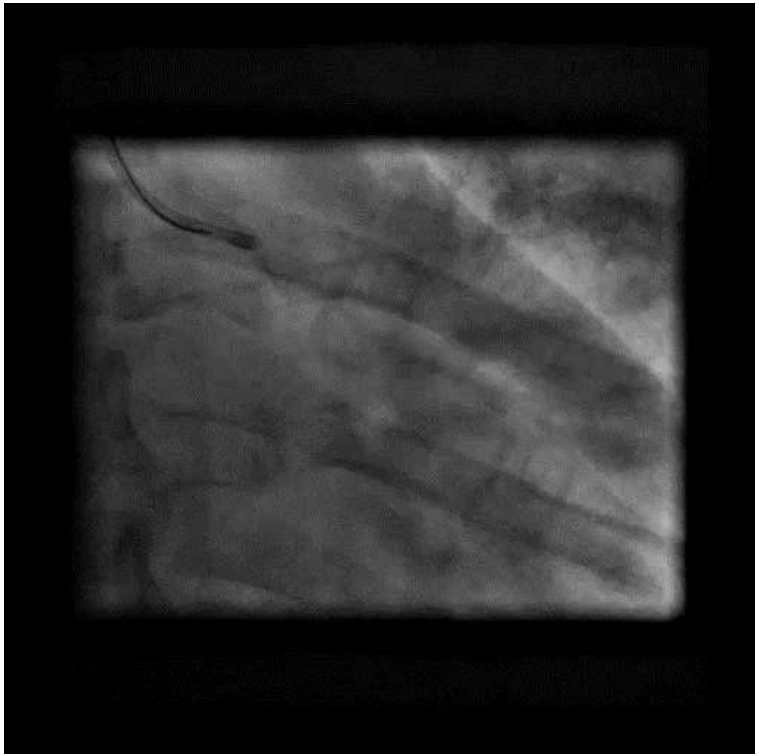
BVS in Kawasaki's Disease

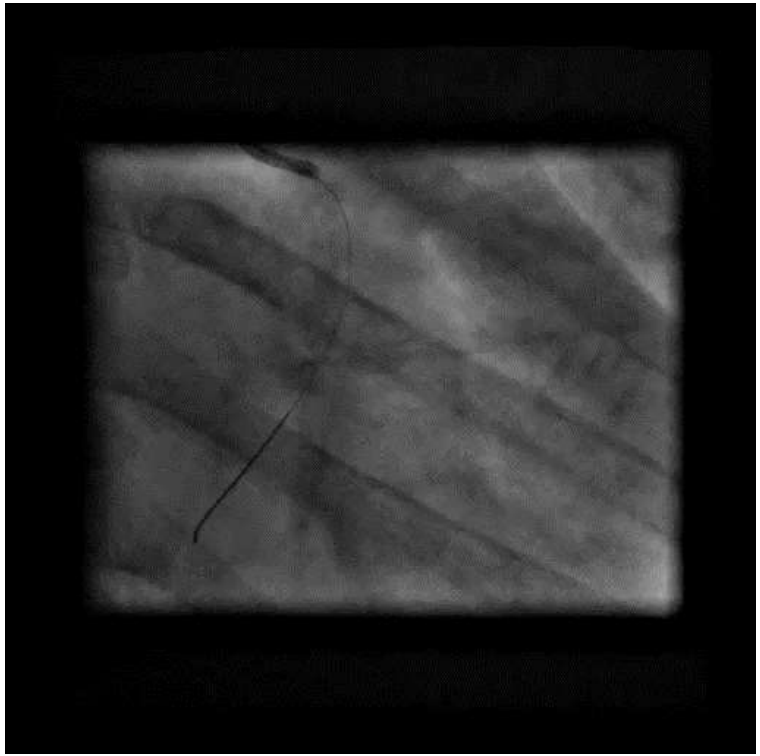
- BVS (Everolimus coated PLLA Scaffold) is a novel intracoronary device
- Restoration of natural vasomotor function
- Elimination of chronic source of inflammation
- Inhibition of neo-intimal growth
- Potential reduced duration of DAPT
- Availability for surgical or percutaneous intervention of target vessel in the future
- Especially in young patients with progressive disease
- Scant experience in Kawasaki's Disease

LCx aneurysm with stenotic lesion (2013)

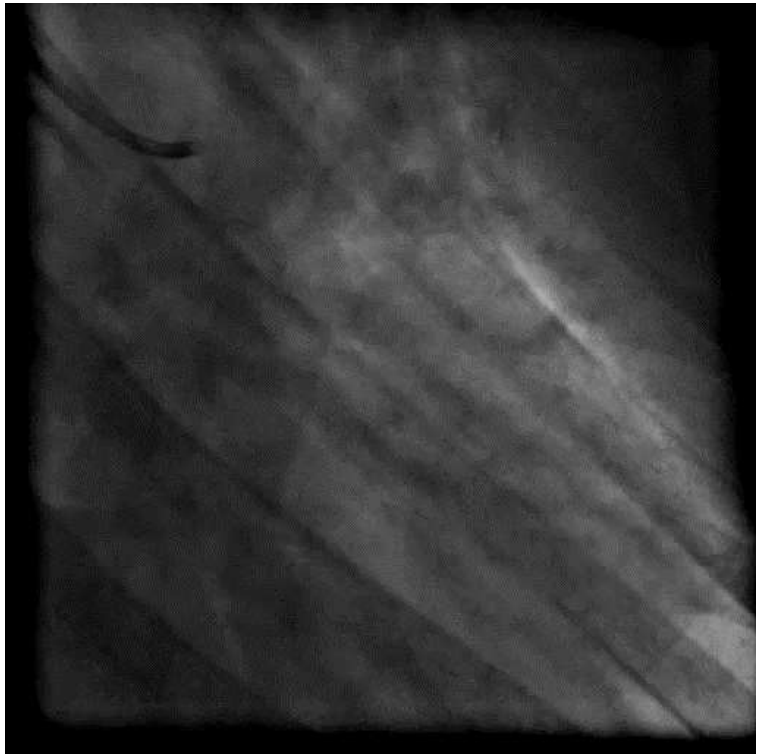


LCx stenotic lesion with BVS implantation

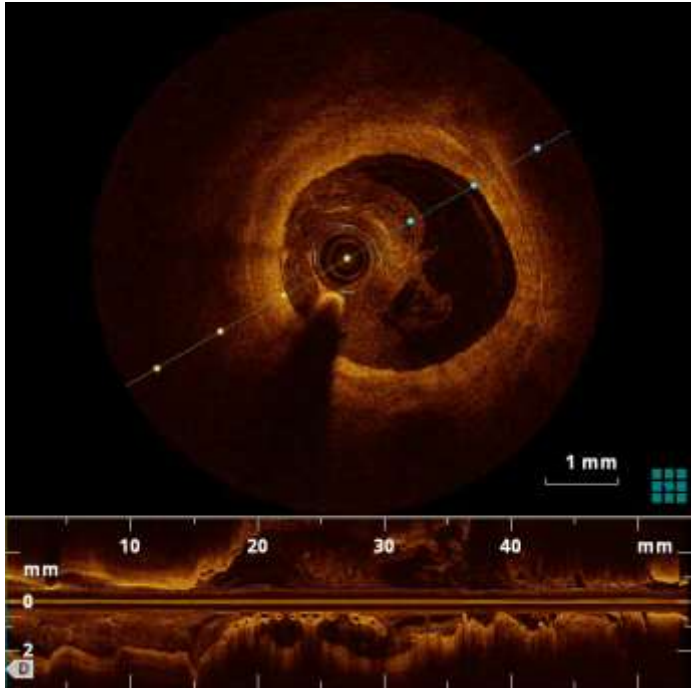




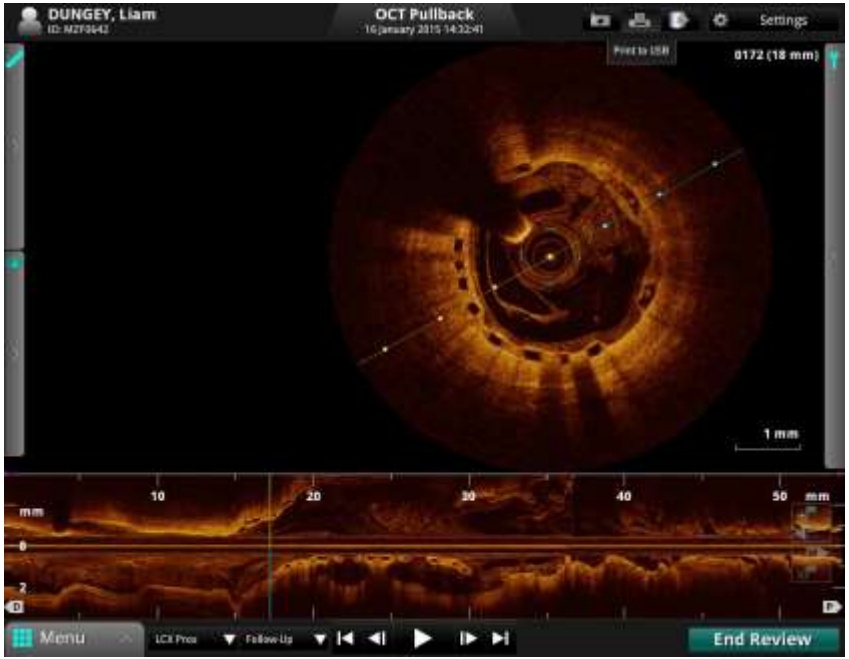
LCx lesion 1 year post BVS

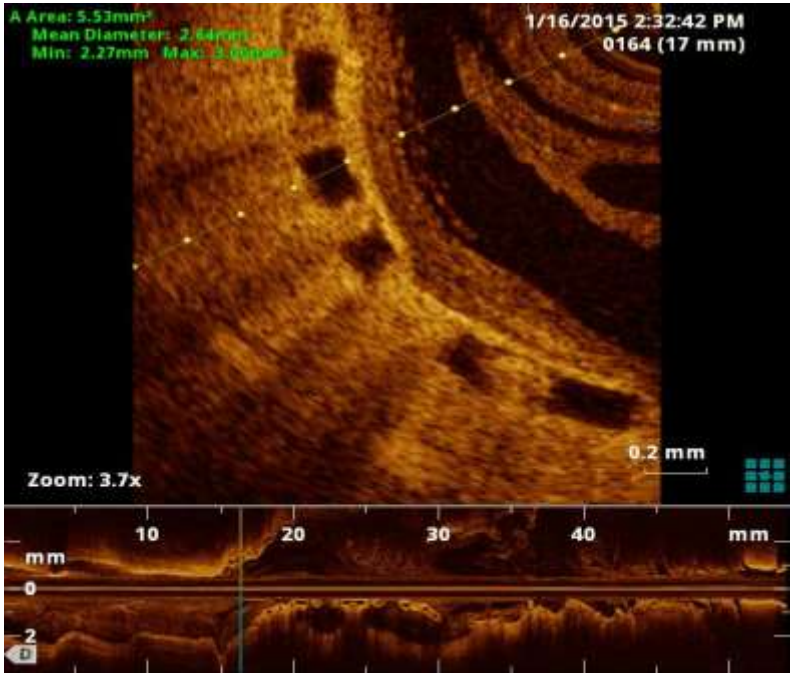


OCT 1 year post BVS implantation

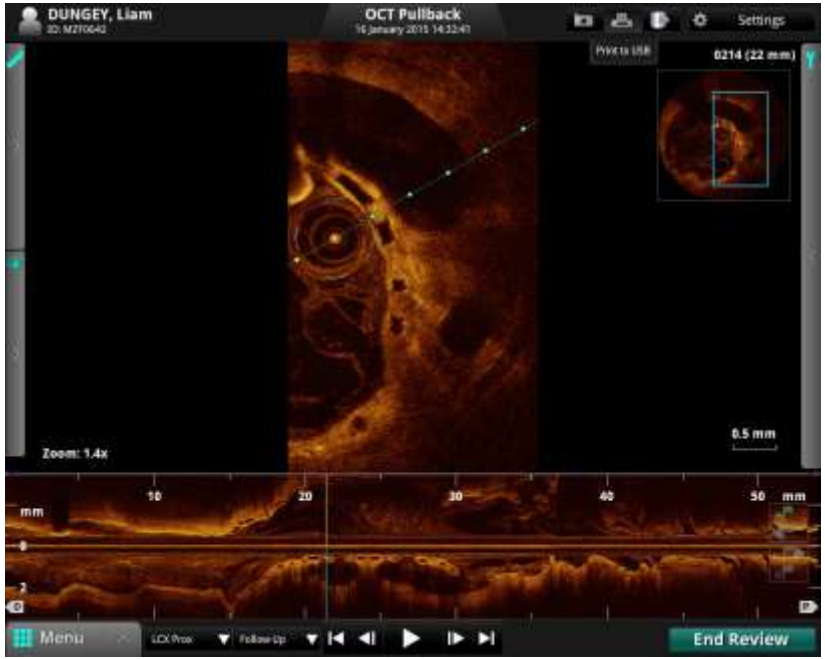


OCT 1 year post BVS implantation





OCT 1 year post BVS implantation



OCT at 1 Year post BVS implantation

- BVS well apposed and endothelialized
- Small area of mal-apposition at proximal edge of BVS
  - ? Positive vessel remodelling
  - ? Aneurysm extension
  - ? Small branch in the vicinity
- Continue with DAPT
- Hope for complete resorption of BVS at 2-3 years

Role of OCT in BVS (pre-implantation)

- Precise sizing is key
  - Thicker struts (156μm)
  - Tighter ring structure
  - Limited capacity of post dilatation
  - Risk of strut fracture
- Adequate vessel preparation requires accurate assessment of the lesion (length, calcium, TCFA)

Role of OCT in BVS (post-implantation)

- Stent edge dissection
- Intra-scaffold dissections causing intramural haematoma
- Stent mal-apposition and under-expansion
- Residual thrombus
- Strut fracture
- Almost one quarter of the cases require further optimization post angiographically successful implantation

Role of OCT in BVS (long-term follow up)

- Percentage of strut coverage
- Neo-intima formation
- Potential recoil pattern recognition
- Degree of resorption of BVS

BVS in Kawasaki's Disease (OCT in follow up)

- Continued DAPT (?Aneurysm formation)
- Planned for follow up OCT at 2 years
- Might need further intervention
- Surgical option still available

Thank you