Color and Duplex Ultrasonography of Right Gastroepiploic Artery as an in situ Coronary Artery Bypass Graft

Purpose
To evaluate the patency and functionality of the RGEA as an in situ coronary artery bypass graft using color and duplex ultrasonography

Materials and Methods
In nine patients who had undergone an in situ RGEA bypass graft coronary arterial bypass graft (CABG) operation, postoperative coronary angiography, color and duplex ultrasonography were performed. Diameter, pattern of spectral waveform, peak systolic velocity (PSV), peak diastolic velocity (PDV), cRI (defined as PSV minus PDV, divided by PSV), and mean blood flow calculated as time averaged mean velocity by cross-sectional area were measured.

US technique
1. To find RGEA graft: the graft was mobilized to the pericardial cavity through a hole in the diaphragm, passing the stomach and the left hepatic lobe anteriorly
2. Measurement: diameter, velocity, mean blood flow
3. spectral waveform

Results
All nine RGEAs were patent angiographically. On color and duplex ultrasonography, the RGEA showed a biphasic flow pattern in eight patients and to-and-fro pattern in one, in whom angiography showed reversed flow from RGEA to hepatic artery. The diameter of RGEAs ranged from 2 to 3mm, PSV from 19.5 to 87.1cm/sec, PDV from 16.7 to 69.6cm/sec, cPI from 0.67 to 1.44, mean blood flow from 15.9 to 104ml/min (n=6).

Conclusion
Color and duplex ultrasonography of RGEA, as an in situ coronary artery bypass graft, is a non-invasive and valuable method to monitor graft patency.