A 59-year-old man came to the emergency department of a local community hospital with severe substernal chest pain. This patient was morbidly obese:

- height — 68.1 inches
- body weight — 389.4 pounds
- body surface area — 2.72 m²

At the local hospital, he was noted to have normal cardiac examination; however, his electrocardiogram showed sinus rhythm with ST elevations in leads 2, 3, and aVF with QS complexes in same leads. The patient was also noted to have ST depressions in leads 1 and aVL. Acute coronary syndrome was diagnosed and the patient was sent to tertiary care hospital for emergency cardiac catheterization.

The evaluation

When I arrived to evaluate the patient, he was still having continuous moderate chest pain. His body habitus was such that he could not lay down flat on his back and he was sitting up on the stretcher.

The patient did not have any previous history of ischemic heart disease. This was his first episode of chest pain. He was mildly short of breath and also mildly diaphoretic with a sinus rhythm on the monitor. His vital signs were stable. Past medical history was significant for COPD, possible obstructive sleep apnea, systemic hypertension, and morbid obesity.

At the time of my evaluation, his cardiac exam revealed normal S1 and S2. No cardiac murmurs were present. Examination of the lungs showed decreased sounds at both bases.
The patient was noted to be hyperlipidemic and his laboratory data revealed the following:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin</td>
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<tr>
<td>Hematocrit</td>
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<td>BUN</td>
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</tr>
<tr>
<td>Creatinine</td>
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<tr>
<td>Total Cholesterol</td>
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<td>LDL</td>
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</tr>
<tr>
<td>HDL</td>
<td>40</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>122</td>
</tr>
</tbody>
</table>

His troponin at the local hospital was 13.15, which rose to 38.06 after coronary intervention.

Emergency cardiac catheterization using the transradial approach

After reviewing pertinent medical records, a decision was made to proceed with emergency cardiac catheterization in this patient for acute coronary syndrome. Because of his body habitus and inability to lay down flat on the bed, a decision was made to proceed with the transradial approach for cardiac catheterization.

Initial testing revealed good collateral circulation to the patient’s right hand and left heart catheterization and coronary angiography was performed using the transradial approach via right radial artery. There was no difficulty in obtaining diagnostic cardiac catheterization pictures (see Fig. 1) using a 5-French Jacky catheter.

Diagnostic angiography in this patient revealed:
- Patent left main coronary artery.
- The left anterior descending artery showed proximal 30% irregular narrowing.
- Ramus intermedius at the origin showed 60% narrowing.
- Patent circumflex coronary artery.
- Right coronary artery was noted to be totally occluded. This right coronary artery was a dominant vessel.

After diagnostic angiography, the Jacky catheter was removed and the existing 5-French sheath in the right radial artery was exchanged to a 6-French sheath. At this time, a 6-French right coronary guided catheter was advanced and was inserted to the right coronary artery.

With the help of 0.014 Hi-Torque Floppy guidewire and a 3-mm balloon, the totally occluded right coronary artery was successfully recanalized and the totally occluded area was dilated using this 3-mm balloon. This resulted in establishment of patency and the patient was noted to have large caliber of the right coronary artery, hence the 3-mm balloon was removed and a 5-mm non-drug-eluting stent was deployed at the site of the previously noted totally occluded right coronary artery.

Following this stent placement, the patient was noted to have widely patent right coronary artery with mild atherosclerosis and luminal irregularities. His right coronary artery showed TIMI-3 flow.

Left ventriculogram was not performed.

The results

Following the transradial PCI, the 6-French sheath was removed from the right radial artery a couple of hours later as per post-PCI protocol. This patient was able to sit up in the bed soon after percutaneous coronary intervention and was able to breathe better and he become comfortable.

After transradial stent placement of the right coronary artery, (see Figs. 2 and 3) this patient did very well and remained hemodynamically stable with no cardiac decompensation.

His hospital course was uneventful. After 72 hours of observation, the patient was discharged home on dual-antiplatelet therapy, beta-blockers, and statin therapy. The patient would have follow-up in the office and would have sleep study to rule out underlying obstructive sleep apnea.

Conclusion

Because of this patient’s body weight and body habitus, clearly the transradial approach for his coronary intervention was better than the transfemoral approach. I believe that this resulted in less chance of puncture site complications and enhanced the patient’s safety and comfort.

I believe that this case clearly demonstrates the benefits of transradial coronary intervention in STEMI patient as compared to transfemoral with equal efficacy and safety; similar to the conclusions of recently presented RIVAL trial data at this year’s American College of Cardiology annual meeting.