Balloon Sizing in any case?

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Historical

- Recommended by AGA

- Balloon sizing has been integral part of the intervention
Outline

• The different sizing balloons
• The technique of balloon sizing
• From stretched balloon to stop flow

• Studies comparing balloon sizing and no balloon sizing
• Conclusions
The different sizing balloons
Beginnings of sizing balloon
Meditech sizing balloon

Sizing procedure using the Meditech sizing balloon
NMT sizing balloon

Sizing procedure using NMT sizing balloon waist of the balloon indicates “stretched” diameter of ASD
Balloon Sizing
MOMENAH sizing balloon BALT CBL7F25"
Recommended for “Stop-flow” sizing of ASD
Sizing balloon for two ASDs
Balloon Sizing Procedure
Proponent of Balloon Sizing

Balloon sizing part of our routine practice

Sizing balloon 2 x Echo ASD size

Large balloon allows no full filling of balloon, avoid enlarging defect

Balloon inflated only until cessation of flow

Measure balloon waist fluoro and echo
Device 1 mm larger than waist
Balloon Sizing Procedure
Balloon Sizing Procedure
Balloon Sizing Procedure
Combination fluoro and TEE for stop flow
From stretched balloon to stop flow balloon
Complications evolved with stretched balloon sizing

Tendency to oversize the device
Complications with balloon sizing
Comparing studies: balloon sizing vs no balloon sizing
TCC ASD - Is balloon sizing still necessary?

38 balloon sizing
64 No balloon sizing

- Higher success rate
- Smaller devices
- Shorter fluoro time

Conclusion:
Balloon sizing not necessary for success

Swee Chye Quek et al.
TCC ASD- Balloon sizing or no balloon sizing?

61 balloon sizing
67 No balloon sizing

Higher success rate
Smaller devices
Same embolization rate

Conclusion:
Balloon sizing not necessary for success

S K Gupta et al.
Ann Pediatr Cardiol 2011;1
TCC ASD without balloon sizing

<table>
<thead>
<tr>
<th></th>
<th>No balloon sizing</th>
<th>Yes balloon sizing</th>
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<tr>
<td>243</td>
<td>No</td>
<td>271</td>
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Similar success rate
Embolization rate
Complete occlusion

No need for balloon sizing

J-K Wang et al.
Catheterization and Cardiovascular Interventions 71:214–221 (2008)
When to use and when not to use balloon sizing?
There is no agreement about balloon sizing

Preference of examiners

Not enough evidence: to use or not to use
When NOT to use balloon sizing

• Perfect, central ASD II

• No deficient rims

• Only one single deficient rim
When to use balloon sizing

- Not confident without balloon sizing
- More than 2 deficient rims
- Floppy aneurysmal septum
- Fenestrated ASD
- Very large ASD in young patients
Conclusions

- Similar success rate, embolization rate between sizing and no balloon sizing
- Balloon sizing leads to oversized devices
- Balloon sizing increases costs and fluoro time

Possibly useful for:
- For multiple ASDs
- For fenestrated ASDs
- Very flimsy septum
Echocardiogram representation (Figure 1a) and anatomic specimen (Figure 1b) of a multi-fenestrated atrial septal defect showing large amount of left to right shunting across multiple planes of the complex atrial septal aneurysm.

Fig. 5 - Stretched diameter determination in the patient with 2 separated holes. Two balloon catheters (AGA Medical Corporation, Golden Valley, MN) were positioned, one at each defect.
TCC ASD- Is balloon sizing still necessary?

Comparison of 2 groups

Balloon sizing over-size ASD
This leads = larger device then needed
Precluding from ASD TTC
Increased procedural, fluoroscopy time
Increased cost

CONCLUSION
Balloon sizing no longer necessary

Swee Chye Quek et al.
Balloon sizing used to choose an appropriate sized device. 

Question: is it necessary?

We postulate

MATERIALS AND METHODS: Patients who had balloon sizing, with (Group 1, n = 38) or without (Group 2, n = 21) atrial septal defect closure, were compared to another group (Group 3, n = 64) who had atrial septal defect closure without balloon sizing. Although the atrial septal defect size (mm) in those without balloon sizing (Group 3) compared to patients who had balloon sizing (Group 1) (18.3 +/- 5.4 vs 14.8 +/- 5.8; P = 0.021) was larger, the Amplatzer septal occluder size chosen (mm) (21.6 +/- 6.3 vs 21.2 +/- 8.1; P = 0.693) was similar.
TCC of ASD- is balloon sizing still necessary?

2010:

RESULTS: We analysed the degree of absolute sizing, defined as [(Balloon or Amplatzer occluder size) - (transoesophageal echocardiography size)], versus relative sizing, which is defined as [(Balloon or Amplatzer occluder size)– (transoesophageal echocardiography size) / (Balloon or Amplatzer occluder size)].

It was evident that there was greater absolute and relative over-sizing (6.3 +/- 4.4 mm vs 4.2 +/- 2.1 mm; P = 0.009 and 28.3 +/- 15.4% vs 20.0 +/- 7.0%; P = 0.001, respectively) in patients with balloon sizing (Group 1) compared to those who did not (Group 3).

Even a greater degree of absolute (5.1 +/- 3.9 mm vs 9.5 +/- 4.7 mm; P <0.001) and relative over-sizing (24.8 +/- 15.6% vs 33.0 +/- 13.6%; P = 0.001) was observed in patients who had balloon sizing but there was no closure (Group 2) compared to those who had balloon sizing and closure of their defects (Group 1). CONCLUSION: Our results show that balloon sizing tended to over-size the atrial septal defect. This may have an important bearing in selecting a larger device than necessary, or even precluding transcatheter closure of the larger atrial septal defects.

It is also associated with increased procedural, fluoroscopy time and cost.

We suggest that balloon sizing may no longer be necessary in the protocol of device closure of an atrial septal defect.

Swee Chye Quek et al.
ASD sizing balloon

The different Phases of ASD closure

- Change in management of ASD closure over the years.

- The different phases of ASD closure and where balloon sizing fits in