The Method of Balloon-TACE

High Efficacy Balloon-TACE (B-TACE) requires consideration of simple hemodynamics. In addition to 8 B-TACE clinical studies, six studies were published that reveal an understanding of B-TACE and a procedural method that produces high efficacy. All six publications reach the same conclusions and are included in the bibliography. Two publications, that provide the most detail, are presented herein.

Simple Hemodynamics of B-TACE

1. An occlusion of the supply artery leading toward the tumor means that the **hemodynamics is governed by the collaterals**
2. Collaterals can be high or low pressure
3. Flow redistribution in favor of the tumor requires a **pressure reduction** distal to the balloon **to <64 mmHg**
4. The tip of the microcatheter **must be distal to high pressure collaterals** for pressure to lower
5. Balloon catheter placement (Superselective/Subsegmental) enables flow redistribution, high-pressure injection & high efficacy
6. In rare instances, balloon occlusion can cause the flow to move away from the tumor. Inject with balloon down

Kakuta A, 2016

Prospective, 27 patients (219 nodules)
Measured balloon occluded pressure at four arterial levels

Artery	% Low Pressure*
1st Order, Lobar	67%
2nd Order	70%
3rd Order	82%
Superselective	+90%

*Percentage of pressure measurements distal to the balloon occlusion that were below 64mmHg and flow redistribution is enabled.

Flow redistribution increases as the balloon catheter is moved distally. Distal tip placement is required for high efficacy.

Matsumoto T, 2015

Retrospective, 47 patients (87 arteries)
Measured balloon occluded pressure at lobar, segmental, & subsegmental levels

Artery	% Low Pressure*
Lobar	38%
Segmental or Subsegmental	
• A1, A4, A8	58%
• A2, A3, A5, A6, A7	100%

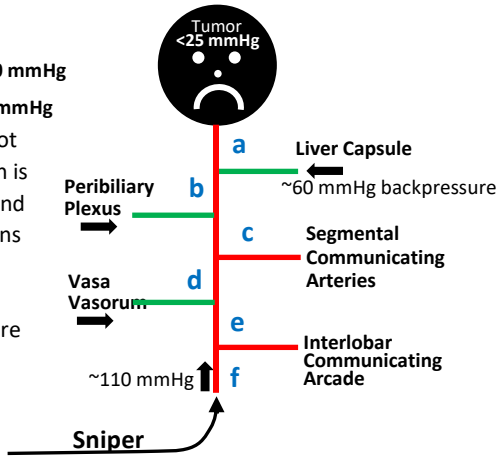
*Percentage of pressure measurements distal to the balloon occlusion that were below 64 mmHg and flow redistribution enabled

Flow redistribution increases as the balloon catheter is moved distally and the center of the liver shows less flow redistribution at segmental level.

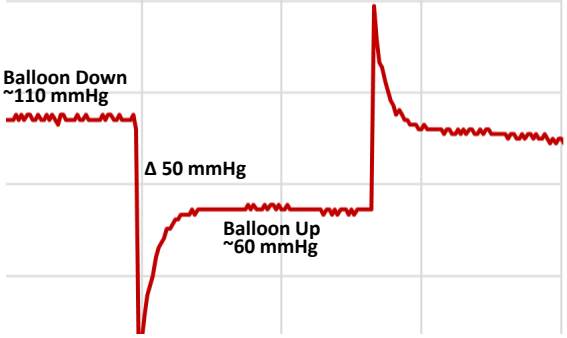
High Pressure ~110 mmHg

Low Pressure ~60 mmHg

Flow reversal will not occur if an occlusion is at positions d, e, f and will occur at positions a, b, c. Balloon occlusion must be beyond high pressure collaterals.



Blood Pressure Reduction via Balloon Occlusion



Blood Pressure Tracing
Balloon Down → Balloon Up

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Available upon request or can be found at https://embolx.com/publications/

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