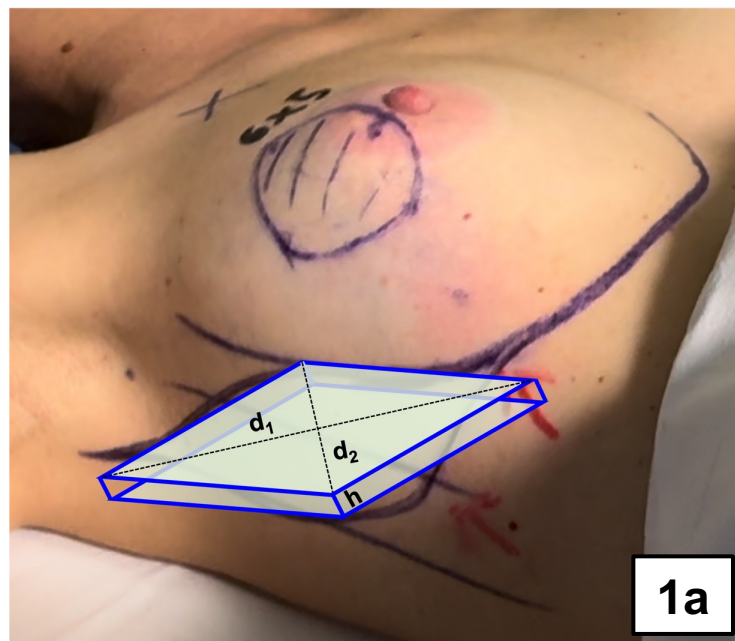
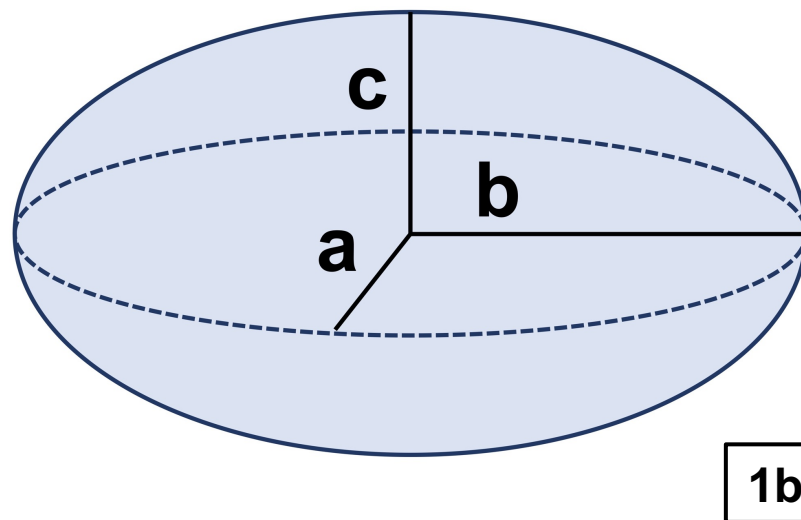


Chest Wall Perforator Flap volume



The predicted CWPF volume was calculated as a rhombic prism using the formula $V = (d_1 \cdot d_2 \cdot h) / 2$, where d_1 and d_2 represent the perpendicular axes of the flap's skin projection, and h corresponds to the flap thickness, estimated via ultrasound as the distance from the skin surface to the underlying muscle fascia (**Supplementary Figure 1a**).

Tumor and Specimen volumes



- Tumor and specimen volumes were calculated using the ellipsoid formula $V = 4/3 \cdot \pi \cdot a \cdot b \cdot c$, where a , b , and c represent the semi-diameters of the tumor (or the specimen) (**Supplementary Figure 1b**).
- The Optimal Resection Volume (ORV) was calculated by adding 1 cm margin in all directions, with en-block resections considered for multifocal/multicentric lesions (**Supplementary Figure 1c**).
- The Anticipated Resection Ratio was defined as ORV-to-breast volume ratio, and expressed as a percentage (**Supplementary Figure 1c**).

Optimal Resection Volume and Anticipated Resection Ratio

