26372 - INCIDENCE OF PERIPHERAL CVP CATHETER MALPOSITION IN MANDIBLE RESECTION

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INTRODUCTION: The composite resection remains the fundamental surgical approach to carcinoma of the posterior oral cavity. Removal of malignancy with reconstruction of the mandible and oral cavity is a challenging procedure. It requires wide surgical exploration of the neck with microsurgical transfer of osteocutaneous free flap, long hours of intervention with significant fluid shifts. These patients, commonly with considerable co-morbidities, poorly tolerate hemodilution, which is beneficial for microsurgery. Invasive monitoring is required and the only reasonable CVP access in this surgery is peripheral, as central (subclavian –SCV, and internal jugular vein-IJV) catheters inevitable become an obstacle in the surgical field. However, the reliability of peripheral CVP and the incidence of its misplacement have not been defined in this surgery population.

METHODS: Following REB approval, we prospectively studied charts of 131 consecutive patients who underwent composite mandible resection from January 01, 2004 to November 30, 2005. In 56 (43%) patients the peripheral CVP (Arrow double-lumens Antecubital) catheter was placed through the antecubital veins (Seldingers technique). Chest x-ray was done in all patients at PACU admission. The proper position was defined as the catheter tip lying between the middle third of subclavian vein (SCV), and the superior vena cava (SVC)-right atrial junction; the rest part of SCV was considered sub optimal. All other locations were considered as malposition.

RESULTS: There were no complications related to the catheter placement. However, chest films confirmed proper position of CVP catheters only in 61% of patients. The most common type of malposition was passing the catheter through the right SVC upward into the IJV (in 10 patients). The proper position was found significantly higher ($p=0.047$) from the left than right side of access: 81%, and 53% respectively (table-1).

DISCUSSION: Antecubital veins provide the safest route for central venous access, however the accurate positioning of peripheral CVP catheter may be difficult. We found the incidence of malposition as high as 23% with suboptimal placement in an additional 16% of patients.

For reliable CVP measurement the tip of a catheter must be within the thorax, however the safest position requires the tip of the catheter to be placed outside the heart and parallel to the long axis of SVC. A chest x-ray is still the only reliable test to confirm proper position. The CVP values obtained from improperly placed catheter may be misleading and provide suboptimal management for these patients.

Peripherally placed CVP catheters have considerable incidence of malposition, and should be followed by radiological verification. Placement from the left side appears to be preferable for peripheral CVP insertion.

Table: Position of peripheral CVP catheters tips in patients after the composite mandible's resection

Venous access	Proper position	Suboptimal	Malposition
Right (n=40)	53% □	22%	25%
Left (n=16)	81% □	0%	19%

The Legend: *Proper position:* the catheter's tip laying between the middle third of subclavian vein (SCV) and the superior vena cava-right atrium junction; *Suboptimal:* the rest part of SCV; *Malposition:* all other locations; n-number of cases; □-P=0.047 (chi-squared test)