



Double Team Approach to Brachial Plexus Surgery

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OBJECTIVES

Brachial plexus surgery constitutes a long and complex procedure. The aim of our study is to assess the advantages of having a double operating team throughout the duration of this surgery.

METHODS

Our study retrospectively reviewed 6 patients affected by brachial plexus injury divided in two groups:
 1) 3 patients who underwent a single team approach and
 2) 3 patients treated with a double team approach

Inclusion criteria were patients with brachial plexus palsy. Data analyzed for each patient were the operating time for every surgical step, position of the single and double team at the operating table and outcomes. Costs and benefits of every surgery were also analyzed. Values were compared to assess any statistical significance. Demographic data showed sex ratio Male:Female 4:2, mean age 27.8 years-old (range 6-51). Mean follow-up was 34 months (range 5-72 months)

RESULTS

The mean operating time was 280 minutes with surgery operated by a single team performing between one and two nerve anastomoses without nerve graft harvesting and 256 minutes in the patient group operated on by two teams in which three anastomoses were performed along with sural nerve harvest. (Fig.1) Position of the two teams at different moment during the procedure are illustrated. (Figs.2-3) Clinical outcomes were checked periodically (Fig.4) No perioperative complications were noted. Hypothermia, bleeding and infections resulted improved and were directly related to the reduced surgical time. Cost-benefit ratio has shown a mean total amount saved of \$8,183 per procedure and operative time reduced almost 50% (Table 1)

SINGLE TEAM	DOUBLE TEAM
<ul style="list-style-type: none"> Anastomoses in neck 1 nerve anastomosed *2 patients had 1 nerve graft (one sural/ one local) Mean time 280 minutes 	<ul style="list-style-type: none"> 2 Intercostal to MC anastomoses with graft 1 Nerve anastomoses in neck Sural nerve graft harvest Mean time 239 minutes

Fig.1. Differences between single and double team approach in terms of number of neurosurgeries and surgical time

DOUBLE TEAM APPROACH

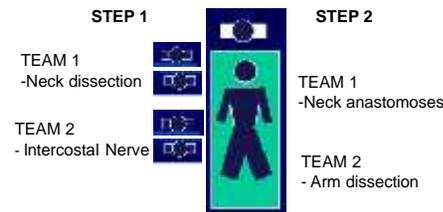


Fig.2. Each surgical step is planned in advance so that optimization of the time is achieved

DOUBLE TEAM APPROACH

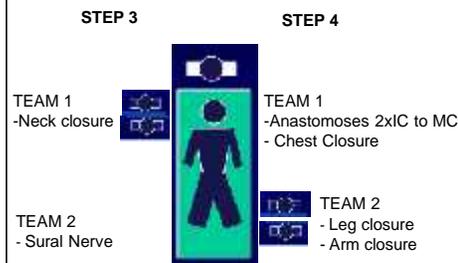


Fig.3. The final steps of the procedures are organized to minimize surgical fatigue during the delicate phases of microvascular neurosurgeries



Fig.4. Good return of elbow function at 10 months from surgery

		Single Team	Double Team
Operating room charges/minute	\$62/min		
Total amount saved	\$8,183		
Mean cost/procedure		\$23,002	14,818
Mean surgical time (minutes)		280	239

Table 1. Costs and operative times resulted significantly improved with the double team technique.

CONCLUSIONS

Brachial plexus surgery performed by a double team allows the reduction of the operating time and thus minimizes the drawbacks associated with lengthy surgery such as perioperative bleeding and infection. Our data overlap what has been previously published in the literature.¹ Reimbursement of two teams appears therefore justified by decreased complications rate and surgical time. The reduced surgical time with the double team approach allows to save \$8,183 per procedure when compared to the single team approach. Surgeon fatigue is another important factor to be considered in decreasing complication rates: microsurgical suturing is easier when performed at the end of a shortened intervention and shared by two senior surgeons. This approach improves the operating conditions and guarantees better outcomes. Limitations of the study are the retrospective nature and the limited number of patients enrolled.

REFERENCES

- Goubier JN, Teboul F, Khalifa H.. The importance of a double team in brachial plexus surgery. *Chir main*, 2010 Jun 29(3): 180-2.