

Minitracheostomy in Treating Traumatic Cervical Spinal Cord Injury After Anterior Cervical Fusion

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Abstract

Background: Patients with cervical spinal injury may frequently require both anterior cervical spine fusion and tracheostomy. In this study, we examined the effectiveness, duration and complications of the minitracheotomy.

Patients and Methods: Minitracheotomy was undertaken of 5 adult patients who diagnosed cervical spinal cord injury admitted between August 2007 and June 2012. After anterior cervical fixation, all Patients underwent minitracheotomy, within 2 weeks.

Results: We performed the minitracheotomy postoperatively, 1 on day 5, 1 on day 6, 1 on day 10, 2 were on day 11 (mean 8.6 day). The duration time of the minitracheotomy is 12 to 41 days. No one needed conventional tracheostomy.

Discussion: There is no standard theory concerning the indications, index of the intubation and extubation of the minitracheotomy.

Conclusion: The minitracheotomy is very useful and convenient for the postoperative spinal injury patients. There was no infectious complication of minitracheotomy. We may consider minitracheotomy for airway management after anterior cervical surgical within 2 weeks.

Keywords: Minitracheostomy; Traumatic Cervical Spinal Cord Injury; Anterior Cervical Fusion

Background

Patients with cervical spinal injury may frequently require both anterior cervical spine fusion and tracheostomy. Despite the close proximity of the two surgical incisions, we postulated that minitracheostomy could be safely performed after anterior cervical fixation. In this study, we examined the effectiveness, duration and complications of the minitracheotomy.

Case Report

We performed cricothyroidotomy (Mini Track II, Portex®) as a minitracheotomy. Minitracheotomy was undertaken of 5 patients who were diagnosed cervical spinal cord injury admitted between August 2007 and June 2012. After anterior cervical fixation, all patients underwent minitracheotomy, within 2 weeks.

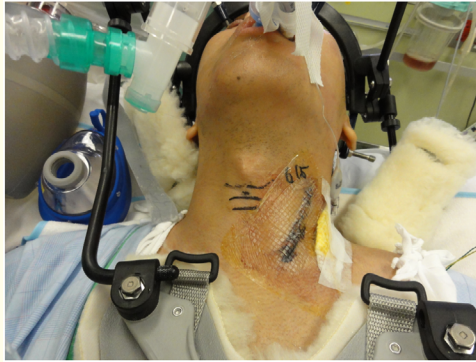


Figure 1: The view of anterior surgical wound and cricothyrotomy point.



Figure 2: Connection of Mini-Trach® to ventilator.



Figure 3: Cervical XP shows location of anterior fixation plate and minitracheostomy.

Result

There were 4 men and a woman. 4 men were derived from trauma, a woman was derived from infection. We performed the minitracheotomy postoperatively, 1 on day 5, 1 on day 6, 1 on day 10, 2 were on day 11 (mean 8.6 day). The duration time of the minitracheotomy is 12 to 41 days. Related to this procedure, there was neither severe infectious complication nor vomiting and bleeding. A case underwent reintubation due to worsening of atelectasis. The patient underwent minitracheotomy again after 9 day later, and he could breath spontaneously without mechanical ventilation. No one needed conventional tracheostomy.

Age	Sex	Disease	Surgical	Performed day of post surgery
51	M	C6 dislocated Fracture ASIA A (C6 level)	Anterior Fixation C5/C6	11 th
62	M	C5 dislocated Fracture ASIA A (C6 level)	Anterior Fixation C5/C6	10 th
77	F	pyogenic Spondylitis ASIA C (C5 level)	Anterior FixationC4/ C5/C6	11 th
36	M	C345 dislocated Fracture ASIA A→C (C3 level)	Anterior Fixation C2/3/4/5/C6	6 th
16	M	C5 dislocated Fracture	Anterior FixationC4/ C5/C6	5 th

Table 1: Patients' characteristics who underwent minitracheostomy after anterior cervical fixation.

Discussion

There is no standard theory concerning the indications, index of the intubation and extubation of the minitracheotomy.

From the view of wound union and anterior spine stabilization, conventional tracheostomy has not recommended after anterior cervical surgical procedure, at least, more than 2 weeks later.

But, recently, 2 reports have been made, that it is not significant that complication rate of percutaneous tracheostomy within 2 weeks after anterior cervical surgical procedure. The minitracheotomy is very useful and convenient for the postoperative spinal injury patients. There was no infectious complication of minitracheotomy. We may consider minitracheotomy for airway management after anterior cervical surgical within 2 weeks.

Summary

From point of the view of airway management and vocal communication, we consider it may be useful that minitracheotomy for airway management after anterior cervical surgical within 2 weeks. Further study is needed.

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