



Acute Unilateral Vocal Fold Paralysis After Cervical Injection of Intravenous Drugs

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ABSTRACT

Objective: To present a case of unilateral vocal fold paralysis (VFP) after injection of cocaine and heroin into the neck and to discuss the clinical presentation, etiology and management options of acute VFP secondary to injection injury

Results: Only a handful of cases of VFP after cervical intravenous drug injection have been reported, last of which was documented in 1990. A comparison between management of the current case and management of previous cases is shared. After 72 hours of observation with no improvement in symptoms, the patient underwent direct laryngoscopy with left vocal fold injection of calcium hydroxylapatite with adequate medialization. Repeat swallow evaluation demonstrated improvement of oropharyngeal dysphagia with no signs of aspiration on oral intake and improved dysphonia.

Conclusion: Although uncommon, VFP is a potential complication of cervical intravenous drug injection that should be recognized by the otolaryngologist. Early management of acute unilateral VFP with vocal fold injection medialization may prevent airway and swallow-related complications.

INTRODUCTION

- Opioid drug addiction has become one of the worst epidemics in modern history. Between 2002 to 2013, the rate of heroin abuse/dependence has increased 90.0% from 1.0 to 1.9 per 1000¹
- Intravenous drug users utilize larger caliber veins in the neck for venous access when smaller peripheral veins sclerose that can damage nearby neurovascular structures.
- Vocal fold paralysis (VFP) is a rare complication of cervical neck injections.
- We report a case with and a review of the literature with an update in management strategy.

CASE REPORT

History: 33 year old female with sudden onset of hoarseness and dysphagia after cervical injection of cocaine and heroin into the left neck.

Physical Examination: Soft breathy voice. Small area of ecchymoses on the left neck just above the medial clavicle. Immediate cough after sips of water. Flexible fiberoptic laryngoscopy demonstrated an immobile left true vocal fold (VF) in the paramedian position with a large glottic gap.

CT with contrast of the neck: Edema within the left carotid sheath between the common carotid artery and internal jugular vein without evidence of vascular injury, with asymmetric positioning of the vocal folds. (Figure 1)

Management:

- Admitted for observation. Made nil per os for aspiration risk. Started on IV steroids and antibiotics.
- Bedside swallow evaluation showed overt signs of aspiration with thin liquids.
- Repeat laryngoscopy in 72 hours unchanged.

Intervention:

- Direct Laryngoscopy with injection medialization of left TVF with aqueous glycerin/carboxymethylcellulose gel (Prolaryn Gel; Merz North America, Raleigh, NC).
- Postoperative swallowing evaluation showed no signs of aspiration and an improved voice.

DISCUSSION

Suspected Etiology

- Seeding of bacteria from a contaminated needle or infiltration of the narcotic solution into the extravascular space
- Localized inflammation and edema within the carotid sheath (Figure 1)
- Impingement of the recurrent laryngeal nerve.

Review of Literature (Table 1)

- Presenting symptoms: hoarseness, airway obstruction and neck abscesses
- Prognosis: 0/11 cases of VFP from IDU had return of function, even with surgical decompression.
- Intervention: Bilateral VFP more commonly associated with need for acute airway intervention (4/5 presented with airway obstruction and required tracheotomy)

Injection laryngoplasty as update to treatment options

- Can decrease need for permanent medialization thyroplasty²
- better perceptual voice quality and glottic sufficiency as compared to voice therapy alone or observation.³

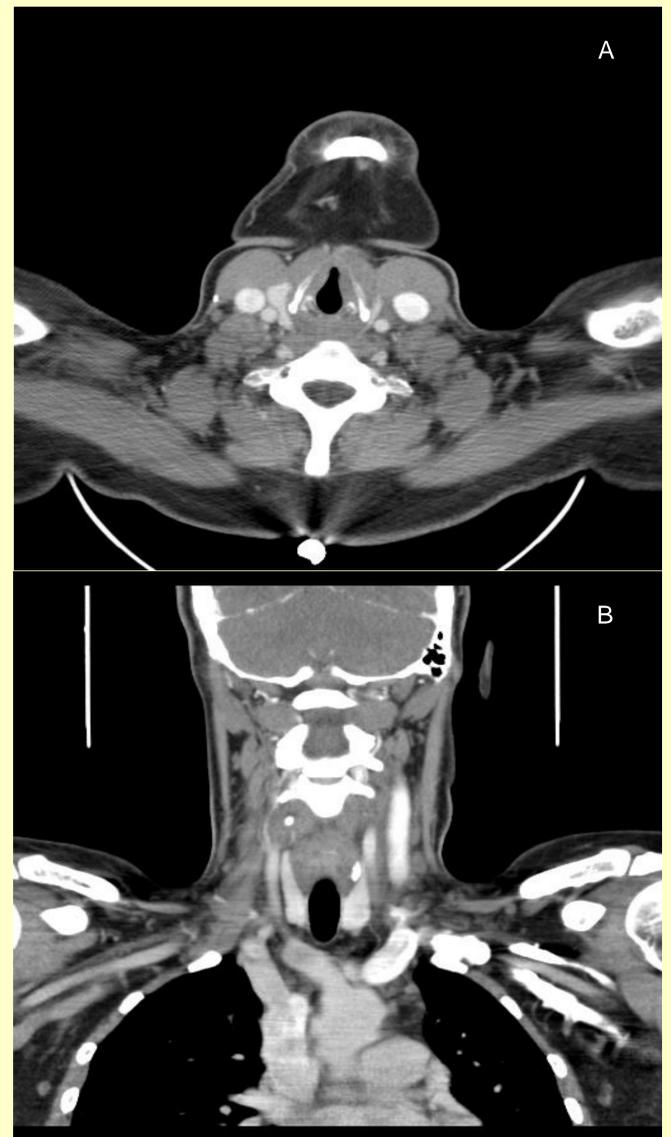


FIGURE 1. Computed tomographic scan of the neck with contrast in axial (A) and coronal (B) views showing separation of the left internal jugular vein and common carotid artery at the level of the thyroid cartilage consistent with edema and inflammation of the carotid sheath.

CONCLUSION

- Vocal fold paralysis is a rare complication of cervical intravenous drug use.
- Initial management of UVFP may consist of observation, voice therapy, or temporary injection laryngoplasty.
- Early IL for UVFP may reduce the need for permanent medialization.

REFERENCES

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TABLE 1. Summary of cases of VFP secondary to cervical IDU

Author(s), Year	Age	Post-injection presentation time	Presentation	Vocal Fold Paralysis	Management	Length of Follow-up (months), Results
Raz et al., 1984						
	38	4 months	H	L	Neck exploration, decompression of RLN from diffuse fibrosis	3M, No ROF
	34	8 months	H	L	Neck exploration, decompression of RLN from diffuse fibrosis	4M, No ROF
Myers et al., 1988						
	30	n/a	H	R	No surgery, antibiotics given	n/a
	28	n/a	H	BL	No surgery, antibiotics given	n/a
	37	n/a	H	L	No surgery, antibiotics given	n/a
	38	n/a	H	L	Tracheotomy, antibiotics given	n/a
Hillstrom et al., 1990						
	65	Immediate	AO	BL	Tracheotomy	12M, No ROF
	35	3 days	H, NA	R	Neck exploration	4M, No ROF
	33	Several hours	AO	BL	Tracheotomy	54M, No ROF
	35	Several hours	AO	BL	Tracheotomy	50M, No ROF
	36	Several hours	H	L	Observation	12M, No ROF
	36	Several hours	H	R	Observation	48M, No ROF
	31	Several hours	H, NA	R	Neck exploration	6M, No ROF
	38	2 days	AO	BL	Tracheotomy	30M, No ROF
	38	Several hours	H, AO	R	Tracheotomy	1M, No ROF
Current patient	33	Immediate	H	L	Injection laryngoplasty	n/a

M= months, H= hoarseness, AO= airway obstruction, NA= neck abscess, ROF= recovery of function