

# Application of Sodium Fluorescein for Spinal Cord Lesions: Intraoperative Localization for Tissue Biopsy and Surgical Resection

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## INTRODUCTION

- Sodium fluorescein (NaFL) has been used to aid in the resection of intracranial lesions
- There is limited research on clinical applications for lesions within the spinal cord
- Fluorescein-guided microsurgery may increase ability to safely treat spinal lesions

## OBJECTIVES

- To describe our first-hand experience using sodium fluorescein for spinal lesions and the surgical advantages obtained

## METHODS

- Twelve patients with spinal cord lesions received fluorescein sodium prior to surgical intervention
- Intraoperative visualization of fluorescence was performed using a Zeiss Pentero microscope equipped with a Yellow560 filter or a Leica OH6 equipped with a FL560 filter.

## RESULTS

- Administration of sodium fluorescein resulted in lesional fluorescent contrast extravasation and facilitated surgical resection and localization in all patients.
- In patients with a goal of complete resection, NaFL aided in complete resection of the spinal lesions in seven patients
- In the other five patients, NaFL allowed for successful tissue biopsy

## CONCLUSIONS

- Fluorescein is a helpful microsurgical tool in guiding surgical resection and in the localization of intramedullary spinal lesions.
- Further research is necessary to explore fluorescein sodium applications in the resection of spinal cord lesions.

Sodium fluorescein is safe when applied to intradural intramedullary spinal lesions

NaFL can be used to increase accuracy when obtaining pathologic biopsies from the spinal cord

NaFL can aid in surgical resection of intramedullary spinal lesions and identify important surgical margins

Patient	Age (Years)	Sex	Clinical Presentation	Location
1	28.8	F	Progressive neck pain, Upper extremity weakness	C1-C5
2	37.4	F	Back pain with progressive weakness	L1-L2
3	48.4	F	Left Upper extremity pain and weakness	T1-T2
4	51.3	M	Progressive weakness	Multiple lesions
5	54.2	F	Progressive lower extremity weakness	T12-L1
6	67.3	M	Progressive myelopathy	C7-T1
7	58.0	M	Progressive weakness	C2-C3
8	41.8	F	Progressive lower extremity weakness	T1-T2
9	47.6	M	Right Upper extremity pain	C3-C5
10	47.4	M	Radicular chest pain	T2-T4
11	65.5	M	Progressive left lower extremity numbness	T7-T8
12	81.8	M	Progressive cervical myelopathy	C1-C5

Patient	Age (Years)	Sex	Surgical Goal	Fluorescein Staining	Final Diagnosis
1	28.8	F	Resection	FL +	WHO II Ependymoma
2	37.4	F	Resection	FL +	WHO I Myxopapillary Ependymoma
3	48.4	F	Resection	FL +	Nerve Sheath Tumor
4	51.3	M	Biopsy	FL +	Bacterial abscess
5	54.2	F	Biopsy	FL +	EBV Lymphoproliferative Disease
6	67.3	M	Biopsy	FL +	Glial cells with proliferation and lymphocytic cuffing
7	58.0	M	Biopsy	FL +	Anaplastic Astrocytoma, IDH-wildtype, WHO grade III
8	41.8	F	Biopsy	FL +	Anaplastic Astrocytoma, H3-K27M mutant
9	47.6	M	Resection	FL +	WHO II Ependymoma
10	47.4	M	Resection	FL +	WHO II Ependymoma
11	65.5	M	Resection	FL+	WHO II Ependymoma
12	81.8	M	Resection	FL+	WHO II Ependymoma

