Polymyalgia Rheumatica: Anesthetic Considerations

Glen Atlas, MD, MSc,* and H. Arandia, MD*

Abstract

Polymyalgia rheumatica (PMR) is a common disease of the elderly. Chronic proximal muscle pain with an elevated erythrocyte sedimentation rate and anemia are commonly found. Its most significant aspect is its association with temporal arteritis. PMR has been reviewed extensively in the general medical[1-6] *and rheumatologic literature.*[7-11] *Yet, the anesthetic management of PMR has not previously been reported.*

Case Report

The patient was a 57-year-old white female with a 2-year history of an enlarging thyroid nodule; she presented with minimal dysphagia and shortness of breath. Her medical history was significant for polymyalgia rheumatica (PMR), asthma, and depression. Her surgical history consisted of a right carpal tunnel release approximately 2 years prior to admission, bilateral bunionectomies 2 decades prior to admission, and an appendectomy as a child. She was now scheduled for an elective subtotal thyroidectomy. She had no complaints of visual disturbances, headache, scalp tenderness, or jaw pain.

The patient's current medications were theophylline 300 mg po bid, prednisone 5 mg po bid, levothyroxine 0.15 mg po qd, diclofenac 75 mg po bid, and fluoxetine 20 mg po qd. Her preadmission laboratory findings showed a normal hematocrit of 41.1% (36% to 45%), an elevated white blood cell count (12.7 $k \cdot \mu L^{-1}$), and normal serum electrolytes and renal function. In addition, an elevated serum glutamic oxaloacetic transaminase (SGOT) was noted of 61 $U \cdot L^{-1}$ (8 to 39 $U \cdot L^{-1}$). Her electrocardiogram was normal.

On the preoperative visit, her vital signs were normal; she weighed 90 kilograms, and was afebrile. The uvula, soft palate, and faucial pillars were visible, and she was edentulous. Her trachea appeared midline, and she had no difficulty extending her neck. A firm but mobile nodule approximately 1 cm in diameter could be palpated along the lower left border of her thyroid gland. There was no evidence of tenderness in the vicinity of the temporal arteries. The remainder of her physical examination was normal.

The patient received her usual medications on the morning of surgery with the addition of 100 mg of intravenous (IV) hydrocortisone. Induction of general anesthesia consisted of thiopental 300 mg IV, atracurium 50 mg IV, and 5 cc of 4% topical laryngeal lidocaine. Her trachea was intubated without difficulty

*Dr. Atlas is a Resident and Dr. Arandia is an Associate Professor, Department of Anesthesiology, SUNY Health Science Center at Syracuse, Syracuse, New York.

Accepted for publication July 5, 1991.

using a #3 Macintosh blade and a 7.5-mm cuffed endotracheal tube. Her eyes were then closed and taped. Anesthesia was maintained with 1.5% isoflurane, 50% nitrous oxide, and 50% oxygen.

During the operation, she experienced moderate bronchospasm that was relieved by metaproterenol via a nebulizer. Prior to extubation the patient received 5 mg of neostigmine IV and 1 mg of glycopyrollate IV for reversal of neuromuscular blockade.

Postoperatively, she had no complaints of visual disturbances or myalgias. The quality of her scalp pulses was unchanged from the initial preoperative assessment. She had neither scalp nor jaw pain and was discharged on the day following surgery.

Table. Physical Signs and Symptoms of Polymyalgia Rheumatica

Aching and stiffness of proximal muscles[1] (occurring in the morning and after periods of inactivity)
Peripheral pain and stiffness[1]
Fever[1]
Malaise[1]
Depression[1]
Weight loss[1]
Synovitis[1,12,13]
Upper-arm tenderness[14]
Carpal tunnel syndrome[1,12,13]
Bursitis, tendonitis[1]
Signs and symptoms of temporal arteritis can also be observed with PMR: headache,[15] tender, swollen or nodular temporal artery,[15] jaw and/or tongue claudication,[15-18] and decreased visual acuity.[15]

Discussion

PMR affects the proximal musculature of the neck, shoulders, and hips. It has a prevalence of 0.4% for people over 50 years of age. Females are afflicted approximately twice as often as males, and caucasians seem to be affected more than other races.[1] Complaints are related primarily to the aching and stiffness of the proximal muscles in the morning and after periods of inactivity. Additional physical signs and symptoms are listed in the Table.

Frequent laboratory findings include an elevated erythrocyte sedimentation rate (ESR) of >40 mm h^{-1} (Westergren) and anemia. Liver function tests (LFTs) may also be elevated.[19] Normal findings include a negative rheumatoid factor, normal creatine kinase, normal electromyograms, and a negative antinuclear antibody screen.

PMR patients have such a dramatic and rapid response to orally administered corticosteroids that this is considered by some to be diagnostic.[3,4] Nonsteroidal anti-inflammatory drugs (NSAIDs) are also often used in treatment.[1] The duration of PMR is approximately 11 months with few patients relapsing.[1] Lifespan is normal. PMR has also been noted in association with lymphoreticular malignancies and may be the presenting complaint.[2,20]

The most significant morbidity related to PMR is its association with giant cell arteritis and specifically temporal arteritis (TA).[1,15-18,21] Approximately 14% of the patients who have PMR will have TA. Conversely, about 50% of those with TA will have PMR.[1,15]

TA, like PMR, affects primarily those over 50 years of age, and women are afflicted more often than men.[15] The cause of these diseases is unknown, but it is felt that they may be related. An association between the genetic marker HLA-DR4 and PMR has been shown.[22,23] Common physical findings in TA include headache, tender temporal arteries, jaw and/or tongue claudication, and PMR.[15] The temporal artery pulse may be decreased or absent. Visual disturbances are an ominous finding and may be a sign of impending blindness. These can happen unpredictably.

Giant cell arteritis (GCA) can affect other vessels of the proximal aorta. Amaurosis fugax has been reported and may be confused with a transient ischemic attack from athero-

sclerotic disease of the carotid artery.[2] Less commonly observed symptoms in GCA include cough, sore throat, and hoarseness.[24]

Laboratory findings in TA are similar to PMR and include an elevated ESR, elevated LFTs, and anemia.[15] Positive temporal artery biopsies from asymptomatic patients with PMR have been reported.[1,15] Lesions are known to "skip" along the artery, and false negative biopsies can occur.[25] Patients with TA, with or without PMR, are treated with higher doses of corticosteroids for longer periods of time than are those with only PMR.[26]

On preoperative examination of the patient with known PMR, particular attention must be given to the possibility of TA. Visual acuity should be assessed and questioned thoroughly. The quality of the temporal artery pulses should be noted, and it may be possible to auscultate bruits. The possibility of scalp tenderness can be examined by palpation.

Ischemia of the jaw and tongue can occur secondarily to arteritis. Symptoms of jaw claudication during speaking and chewing can be elicited from the patient.[21] Jaw pain may also be confused with temporomandibular joint pain, and for this reason, laryngoscopy should be done gently. Tongue claudication can be evaluated by function, such as protrusion, and is relieved by rest. Any signs of ischemia of the tongue must be noted at the time of intubation. Tongue edema, leading to airway compromise, has occurred.[16-18]

Stress-dose steroids may be indicated in many of these patients. Side effects of chronic steroid use, such as hyperglycemia, gastritis, and osteoporosis, may have to be investigated preoperatively to prevent their associated complications. Use of NSAIDs may warrant a preoperative measurement of bleeding time.

Because succinylcholine could induce myalgias, its use during induction should be precluded except when necessary. Eye ointment should probably be avoided, since blurred vision in the recovery room may be mistaken for acute temporal artery occlusion. The patient's eyes should be taped closed. During prolonged surgery, the occasional use of saline eye drops may further protect the cornea without decreasing postoperative visual acuity. Patient positioning must be such that no unnecessary pressure is exerted against areas near the temporal arteries.

Because liver enzymes are frequently elevated in these patients, the use of halothane may lead to a postoperative diagnostic dilemma. During emergence, pain from PMR may limit motion and could appear as incomplete neuromuscular reversal. For instance, patients may have difficulty in maintaining a head lift prior to extubation. In addition, tourniquet pain may be complicated by pre-existing myalgias if IV regional anesthesia is used.

Postoperatively, a check of the patient's vision should be done as soon as possible. Temporal artery pulses can be reassessed at this time. A rheumatologic or ophthalmologic consult may be needed urgently if the patient has any acute visual changes. Currently, high-dose IV steroids are recommended if acute temporal artery occlusion is suspected. One author has suggested using up to 500 mg of methylprednisolone IV over 30 to 60 minutes.[6] Under these circumstances, an ESR should be obtained immediately. A temporal artery biopsy may have to be done to confirm the diagnosis.

A thorough understanding of PMR should enable the anesthesiologist to provide maximum care of these patients. Particular attention must be focused on the possibility of underlying TA.

References

1. Chuang T, Hunder GG, Ilstrup DM, Kurland LT. Polymyalgia rheumatica: A 10-year epidemiologic and clinical study. *Ann Intern Med* 1982;97:672–680.

2. Scully RE, Mark EJ, McNeely WF, McNeely BU. Case records of the Massachusetts general hospital. Weekly clinicopathological exercises. Case 23-1990. *N Engl J Med* 1990;322(23):1656–1665.

3. Wilke WS. Difficulties in diagnosing and treating polymyalgia rheumatica. *Cleve Clin J Med* 1989;56(2):115.

4. Lauter SA, Reece D. Avio[illegible] rheumatica. *Arch Intern Med* 1985[illegible]

5. Healy LA. The spectrum of [illegible] *Clin Geriat Med* 1988[illegible]

6. Allen NB, Studenski SA. Polymyalgia rheumatica and temporal arteritis. *Med Clin N Am* 1986;70(2): 369–384.
7. Cohen MD, Ginsburg WW. Polymyalgia rheumatica. *Rheum Dis Clin N Am* 1990;16(2):325–339.
8. Olhagen B. Polymyalgia rheumatica. *Clin Rheum Dis* 1986;12(1):33–47.
9. Hunder GG, Michet CJ. Giant cell arteritis and polymyalgia rheumatica. *Clin Rheum Dis* 1985;11(3):471–483.
10. Golding DN. The polymyalgic syndrome. *Scand J Rheum* 1985;14:321–323.
11. Healy LA, Wilske KR. Clinical picture of polymyalgia rheumatica, in *The Systemic Manifestations of Temporal Arteritis.* New York, Grune and Stratton; 1978:53–65.
12. Chou C, Schumacher HR. Clinical and pathologic studies of synovitis in polymyalgia rheumatica. *Arth Rheum* 1984;27(10):1107–1117.
13. O'Duffy JD, Hunder GG, Wahner HW. A follow-up study of polymyalgia rheumatica: Evidence of chronic axial synovitis. *J Rheum* 1980;7:685–693.
14. Bird HA, Esselinckx W, Dixon A, et al. An evaluation of criteria for polymyalgia rheumatica. *Ann Rheum Dis* 1979;38:434–439.
15. Huston KA, Hunder GG, Lie JT, et al. Temporal arteritis: A 25-year epidemiologic, clinical, and pathologic study. *Ann Intern Med* 1978;88:162–167.
16. Henderson AH. Tongue pain with giant cell arteritis. *Br Med J* 1967;4:337.
17. Brearley BF, MacDonald JG. Temporal arteritis resulting in infected gangrene of tongue. *Br Med J* 1961;1:1151–1152.
18. Missen GAK. Gangrene of the tongue. *Br Med J* 1961;1:1393–1394.
19. Dickson ER, Maldonado JE, Sheps SG, Cain JA. Systemic giant-cell arteritis with polymyalgia rheumatica: Reversible abnormalities of liver function. *JAMA* 1973;224(11):1496–1498.
20. Kalra L, Delamere JP. Lymphorecticular malignancy and monoclonal gammopathy presenting as polymyalgia rheumatica. *Br J Rheum* 1987;26:458–459.
21. Friedlander AH, Runyon C. Polymyalgia rheumatica and temporal arteritis. *Oral Surg Oral Med Oral Path* 1990;69:317–321.
22. Sakkas LI, Loqueman N, Panayi GS, et al. Immunogenetics of polymyalgia rheumatica. *Br J Rheum* 1990;29:331–334.
23. Cid MC, Guadalupe E, Vilaseca J, et al. Polymyalgia rheumatica: A syndrome associated with HLA-DR4 antigen. *Arth Rheum* 1988;31(5):678–682.
24. Larson TS, Hall S, Hepper NGG, Hunder GG. Respiratory tract symptoms as a clue to giant cell arteritis. *Ann Intern Med* 1984;101:594–597.
25. Klein RG, Campbell RJ, Hunder GG, Carney JA. Skip lesions in temporal arteritis. *Mayo Clin Proc* 1976;51:504–510.
26. Behn AR, Perera T, Myles AB. Polymyalgia rheumatica and corticosteroids: How much for how long? *Ann Rheum Dis* 1983;42:374–378.