

“The spectrum of pericardial involvement in Giant cell arteritis and polymyalgia rheumatica: A systematic review of literature and meta-analysis”

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Summary of the reported cases on pericardial manifestations of GCA and PMR

| Author | Age/Gender | Previous history of GCA/PMR | Pericardial symptoms | Inflammatory markers | Type of pericardial involvement | Pericardial fluid analysis | Pericardial biopsy | TAB |
|------------------------------------|------------|-----------------------------|----------------------------|----------------------|------------------------------------|----------------------------|--------------------|--------------------------------|
| Our patient | 54/F | No | Cough, chest pain | Elevated | Pericardial effusion | Not done | Not done | Positive |
| Clementz et al.¹ | 63/F | No | Dyspnea, chest pain | Elevated | Pericarditis, pericardial effusion | Not done | Not done | Positive |
| Pattis et al.² | 77/F | No | Absent | Elevated | Pericardial effusion | Not done | Not done | Positive |
| Teixeira et al.³ | >60/F | No | Dyspnea | Elevated | Myo-pericarditis | Not done | Not done | Positive |
| | >60/F | No | Dyspnea | Elevated | Myo-pericarditis | Not done | Not done | Positive |
| Guindon et al.⁴ | 75/F | No | Absent | Elevated | Pericarditis, pericardial effusion | Not done | Not done | Positive |
| Moulis et al.⁵ | >70/F | No | Chest pain | Elevated | Pericarditis | Not done | Not done | Positive |
| | >70/M | No | Chest pain | Elevated | Pericarditis | Not done | Not done | Positive |
| Guillame et al.⁶ | 68/F | No | Dyspnea, cough, chest pain | Elevated | Pericarditis, pericardial effusion | Patient refused | Patient refused | Positive |
| Zenone et al.⁷ | 64/F | Yes (GCA) | Absent | Elevated | Moderate pericardial effusion | Not done | Not done | History of biopsy-negative GCA |
| | 67/F | Yes (GCA) | Absent | Elevated | Moderate pericardial effusion | Not done | Not done | History of biopsy-proven GCA |
| | 80/M | Yes (GCA) | Absent | Elevated | Moderate pericardial effusion | Not done | Not done | History of biopsy-proven GCA |
| | 62/M | Yes (GCA) | Absent | Elevated | Moderate pericardial effusion | Not done | Not done | History of biopsy-negative GCA |
| Bablekos et al.⁸ | 71/F | No | Dyspnea | Elevated | Pericardial effusion | NA | NA | Positive |

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| Tasliyurt et al.⁹ | 74/F | No | Absent | Elevated | Moderate pericardial effusion | Not done | Not done | Positive |
| Pugnet et al.¹⁰ | 82/F | No | Chest pain | Elevated | Myo-pericarditis, pericardial effusion | Not done | Not done | Positive |
| Nair et al.¹¹ | 70/F | Yes (PMR) | Dyspnea, chest pain | Elevated | Pericarditis, large pericardial effusion | Not done | Not done | Not done as patient on long-term steroids for PMR |
| Daumus et al.¹² | 67/M | No | Dyspnea, chest pain | Elevated | Myo-pericarditis, pericardial effusion | Not done | Not done | Positive |
| Courtier et al.¹³ | 63/F | No | Chest pain | Elevated | Pericarditis, pericardial effusion, | Not done | Not done | Not done as patient refused |
| Blot et al.¹⁴ | 79/F | No | Absent | Elevated | Pericarditis, pericardial effusion | Not done | Not done | Positive |
| Valstar et al.¹⁵ | 69/F | Yes (GCA) | Dyspnea, chest pain | Elevated | Pericarditis, large pericardial effusion | Yes-1300 ml, exudative sterile fluid | Not done | History of biopsy-proven GCA |
| Butler et al.¹⁶ | 55/F | No | Dyspnea | Elevated | Moderate pericardial effusion | Not done | Not done | Positive |
| Garewal et al.¹⁷ | 69/F | No | Absent | Elevated | Moderate pericardial effusion | Not done | Not done | Positive |
| Miller JP.¹⁸ | 55/F | No | Upper abdominal pain, palpitation | Elevated | Pericardial effusion | Yes-Sterile fluid | Not done | Positive |
| Pedro-Botet et al.¹⁹ | 75/F | No | Absent | Elevated | Small pericardial effusion | Not done | Not done | Positive |
| Nicolás Sánchez et al.²⁰ | 69/F | Yes (PMR) | Abdominal pain | Elevated | Large pericardial effusion | Yes-200 ml, exudative sterile fluid | Not done | Positive |
| Gómez-Barrado et al.²¹ | 75/F | No | Dyspnea | Elevated | Large pericardial effusion | Not done | Not done | Positive |
| Stone et al.²² | 53/M | No | Chest pain | Elevated | Pericardial thickening | Not done | Not done | Positive |
| Tucker et al.²³ | 78/F | No | Dyspnea | Elevated | Small pericardial effusion | Not done | Not done | Not done |
| Lang et al.²⁴ | 84/M | No | Dyspnea, chest pain | Elevated | Myo-pericarditis, large pericardial effusion | Not done | Not done | Positive |
| Hentinger-Romeo.²⁵ | 81/F | No | Absent | Elevated | Pericardial effusion, pericardial thickening | Yes-200 ml sterile fluid | Not done | Positive |
| Dupasquier et al.²⁶ | 74/F | Yes (GCA) | Dyspnea, chest pain | NA | Pericarditis | Not done | Not done | History of biopsy-proven GCA |
| Dupond et al.²⁷ | 66/F | No | Chest pain | Elevated | Pericarditis, pericardial effusion | Not done | Not done | Positive |
| Leclerq.²⁸ | 79/F | No | Dyspnea, chest pain | Elevated | Pericarditis, pericardial effusion | Yes-sterile fluid | Chronic inflammation | Positive |
| Stanley et al.²⁹ | 69/F | No | Dyspnea, chest pain | Elevated | Pericarditis, pericardial effusion | Not done | Not done | Positive |
| Preston et al.³⁰ | 65/F | No | Dyspnea, chest pain | Elevated | Pericarditis, pericardial effusion | Not done | Not done | Positive |
| Gounaris et al.³¹ | 65/F | No | Absent | Elevated | Pericardial effusion | Not done | Not done | Positive |
| Akpinar et al.³² | 54/F | No | Absent | Elevated | Moderate pericardial effusion | Not done | Not done | Not done |
| Bourne et al.³³ | 63/M | Yes (GCA) | Chest pain | Elevated | Pericarditis | Not done | Not done | History of biopsy- |

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|--|------|-----------|------------------------|----------|---|---|---|----------|---|
| | | | | | | | | | proven GCA |
| Hammer et al.³⁴ | 58/F | No | Chest pain | NA | Pericardial effusion | NA | NA | NA | Positive |
| Illes et al.³⁵ | 68/F | No | Dyspnea, chest pain | Elevated | Moderate pericardial effusion | Not done | Not done | Not done | Not done |
| Shu et al.³⁶ | 62/M | No | Cough | Elevated | Pericardial effusion | Not done | Not done | Not done | Not done |
| Linhoudt et al.³⁷ | 75/F | Yes (GCA) | Chest pain | Elevated | Pericarditis | Not done | Not done | Not done | History of biopsy- proven GCA |
| Glover et al.³⁸ | 77/F | No | Dyspnea, chest pain | Elevated | Small pericardial effusion | Not done | Not done | Not done | Not done |
| <i>Polymyalgia rheumatica cases</i> | | | | | | | | | |
| Aparicio et al.³⁹ | 76/F | No | Absent | Elevated | Small pericardial effusion | Not done | Not done | Not done | Not done as GCA features absent |
| Chhabra et al.⁴⁰ | 86/F | Yes (PMR) | Dyspnea, chest pain | Elevated | Moderate pericardial effusion | Not done | Not done | Not done | Not done as GCA features absent |
| Sánchez Ruiz-Granados et al.⁴¹ | 80/M | No | Absent | Elevated | Moderate pericardial effusion | Not done | Not done | Not done | Not done as GCA features absent |
| Mortezavi et al.⁴² | 53/M | Yes (PMR) | Dyspnea | Elevated | Pericarditis, pericardial effusion, cardiac tamponade | Yes- Sterile fluid | Not done | Not done | Negative |
| Milchert et al.⁴³ | 66/F | No | Absent | Elevated | Pericardial effusion | Not done | Not done | Not done | Not done as normal US temporal artery |
| Bichra.⁴⁴ | 72/F | No | Chest pain | Elevated | Pericarditis, pericardial effusion | Not done | Not done | Not done | Not done as GCA features absent |
| Brucato et al.⁴⁵ | 73/F | No | Dyspnea | Elevated | Large pericardial effusion, cardiac tamponade | Yes-Sterile fluid | Not done | Not done | Not done as GCA features absent |
| Calvo et al.⁴⁶ | 74/F | No | Dyspnea, chest pain | Elevated | Large pericardial effusion, cardiac tamponade | Yes-150 ml, exudative sterile fluid | Fibrosis, interstitial hemorrhage, perivascular lymphocytic infiltrate | Not done | Negative |

Continued-

| Author | Final diagnosis | Treatment | Clinical course | Outcome/Follow-up | Quality score |
|------------------------------------|-----------------|--------------|---|--------------------------|---------------|
| Our patient | GCA | Steroid, MTX | Clinical improvement | In remission at 6 months | 18 |
| Clementz et al.¹ | GCA | Steroid | Complicated by pancreatic insufficiency, clinical improvement on steroids | In remission at 1 month | 15 |
| Pattis et al.² | GCA | Steroid | Rapid clinical improvement | In remission at 8 months | 16 |
| Teixeira et al.³ | GCA | Steroid | Clinical improvement | NA | 8 |
| | GCA | Steroid | Clinical improvement | NA | 8 |

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|---|--------------------------------|--------------|---|--|----|
| Guindon et al. ⁴ | GCA | Steroid | Clinical improvement | In remission at 6 months | 12 |
| Moulis et al. ⁵ | GCA | Steroid | Clinical improvement | In remission at 12 months | 9 |
| | GCA | Steroid | Clinical improvement | In remission at 36 months | 10 |
| Guillame et al. ⁶ | GCA | Steroid | Clinical improvement | In remission at 6 months | 17 |
| Zenone et al. ⁷ | GCA-based on history | Steroid | Clinical improvement | In remission at 36 months | 13 |
| | GCA-based on history | Steroid | Clinical improvement | In remission at 8 months | 13 |
| | GCA-based on history | Steroid | Clinical improvement | In remission at 8 months | 13 |
| | GCA-based on history | Steroid, MTX | Clinical improvement | In remission at 36 months | 15 |
| Bablekos et al. ⁸ | GCA | Steroid | Clinical improvement | In remission at 12 months | 11 |
| Tasliyurt et al. ⁹ | GCA | Steroid | Clinical improvement | In remission at 12 months | 18 |
| Pugnet et al. ¹⁰ | GCA | Steroid | Clinical improvement | In remission at 24 months | 18 |
| Nair et al. ¹¹ | GCA-based on clinical features | Steroid | Clinical improvement | In remission at 3 months | 17 |
| Daumus et al. ¹² | GCA | Steroid | Clinical improvement | In remission at 24 months | 18 |
| Courtier et al. ¹³ | GCA-based on PET scan findings | Steroid | Clinical improvement | In remission at 6 months | 18 |
| Blot et al. ¹⁴ | GCA | Steroid | Clinical improvement | NA | 15 |
| Valstar et al. ¹⁵ | GCA | Steroid | Clinical improvement | In remission at 7 months | 18 |
| Butler et al. ¹⁶ | GCA | Steroid | Complicated by drug-induced hepatitis, clinical improvement on steroids | In remission at 2 months | 16 |
| Garewal et al. ¹⁷ | GCA | Steroid | Clinical improvement | In remission at 5 months | 18 |
| Miller JP. ¹⁸ | GCA | Steroid | Clinical improvement | Relapse of pericardial effusion on steroid taper at 2 months | 16 |
| Pedro-Botet et al. ¹⁹ | GCA | Steroid | Clinical improvement | In remission at 9 months | 18 |
| Nicolás Sánchez et al. ²⁰ | GCA | Steroid | Clinical improvement | In remission at 3 months | 18 |
| Gómez-Barrado et al. ²¹ | GCA | Steroid | Clinical improvement | In remission at 2 weeks | 16 |
| Stone et al. ²² | GCA | Steroid | Complicated by CRO, clinical improvement on steroids | In remission at 6 months | 18 |
| Tucker et al. ²³ | GCA-based on PET scan findings | Steroid | Clinical improvement | Immune-mediated thrombocytopenia at 2 weeks | 14 |
| Lang et al. ²⁴ | GCA | Steroid | Clinical improvement | In remission at 3 months | 18 |
| Hentinger-Romeo. ²⁵ | GCA | Steroid | Complicated by junctional tachycardia and pneumonia, | Osteoporotic fracture, recurrent flares and relapse of pericardial | 18 |

| | | | clinical improvement on steroid | effusion at 24 months | |
|--|---|-----------------|---|--|----|
| Dupasquier et al.²⁶ | GCA | Steroid | Clinical improvement | Development of aortic aneurysm at 3 months | 17 |
| Dupond et al.²⁷ | GCA | Steroid | Clinical improvement | NA | 16 |
| Leclerq.²⁸ | GCA | Steroid | Clinical improvement | In remission at 3 months | 17 |
| Stanley et al.²⁹ | GCA | Steroid | Clinical improvement | Death due to mesenteric ischemia at 3 months | 16 |
| Preston et al.³⁰ | GCA | Steroid | Clinical improvement | In remission at 2 months | 15 |
| Gounaris et al.³¹ | GCA | Steroid | Clinical improvement | In remission at 1 month | 14 |
| Akpinar et al.³² | GCA-based on CT/PET scan findings | Steroid, MTX | Clinical improvement | NA | 15 |
| Bourne et al.³³ | GCA-based on history | NA | Clinical improvement | Active disease at 6 months | 6 |
| Hammer et al.³⁴ | GCA | NA | NA | NA | 8 |
| Illes et al.³⁵ | GCA-based on clinical features and CT findings | Steroid | Complicated by recurrent laryngeal nerve paralysis and A-AION, clinical improvement on steroids | In remission at 3 months | 13 |
| Shu et al.³⁶ | GCA-based on CT/PET scan findings | Steroid | Complicated by pulmonary embolism, clinical improvement on steroids | In remission at 6 months | 16 |
| Linthoudt et al.³⁷ | GCA-based on history | Steroid | Complicated by stroke, clinical improvement on steroid | Osteoporotic hip fracture at 3 months | 13 |
| Glover et al.³⁸ | GCA-based on aortic biopsy findings on necropsy | - | Complicated by pulmonary artery obstruction, right heart failure and shock leading to death. | Died | 16 |
| Aparicio et al.³⁹ | PMR-based on clinical features | Steroid | Clinical improvement | In remission at 24 months | 16 |
| Chhabra et al.⁴⁰ | PMR-based on history | Steroid | Clinical improvement | In remission at 2 months | 16 |
| Sánchez Ruiz-Granados et al.⁴¹ | PMR | Steroid | Clinical improvement | In remission at 1 month | 18 |
| Mortezavi et al.⁴² | PMR | Steroid, NSAIDs | Clinical improvement | NA | 7 |
| Milchert et al.⁴³ | PMR | Steroid | Clinical improvement | In remission at 1 month | 10 |
| Bichra.⁴⁴ | PMR | Steroid | Clinical improvement | NA | 6 |
| Brucato et al.⁴⁵ | PMR | Steroid | Clinical improvement | In remission at 12 months | 15 |

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|----------------------------|-----|---------|---|--------------------------|----|
| Calvo et al. ⁴⁶ | PMR | Steroid | Complicated by atrial fibrillation and hepatic dysfunction, clinical improvement on steroid | In remission at 6 months | 18 |
|----------------------------|-----|---------|---|--------------------------|----|

Abbreviations: A-AION, arteritic-anterior ischemic optic neuropathy; CRAO, central retinal artery occlusion; CT, computed tomography; GCA, giant cell arteritis; MTX, methotrexate; NA, not available; NSAIDs, non-steroidal anti-inflammatory drugs; PMR, polymyalgia rheumatica; TAB, temporal artery biopsy.

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