

Table S1 Case reports of patients with CD and CTD described in the literature

Reference	Age (years)/sex	CD	CTD	Interval (CD-CTD)	Antibodies	Overlapping abnormalities							Therapy
						LAP	Systematic symptoms	Hepatomegaly/splenomegaly	Abnormal inflammatory markers	Thrombocytopenia/thrombocytosis	Serum protein	Multiple systems involvement	
Ma <i>et al.</i> 2023 (19)	12/F	HV-UCD	SLE	0	ANA (+), anti-dsDNA (+), anti-Ro (+), anti-nucleosome (+), anticardiolipin (+)	Cervix	Fluid accumulation, weight loss, anemia (Hb 64.2 g/L)	Splenomegaly	CRP (25.2 mg/L), ESR (94 mm/h), ferritin (685 ng/mL)	Thrombocytopenia (71×10 ⁹ /L)	Hyper γ (IgG 28.6 g/L)	Skin lesions, osteoporosis, finger flexion and deformity, arthralgia	Surgery, prednisone acetate, hydroxychloroquine sulfate, leflunomide, thalidomide
Khabbazi <i>et al.</i> 2023 (20)	39/F	HV-MCD	SLE	18 years	ANA (179 IU/mL)	Axilla, cervix	Fever, fluid accumulation, anemia (Hb 117 g/L)	–	Leukocyte (21.5×10 ⁹ /L), CRP (19 mg/L), ESR (80 mm/h)	–	Hypo ALB (33 g/L)	Skin lesions	Prednisolone, hydroxychloroquine
Watanabe <i>et al.</i> 2023 (21)	60/M	iMCD-TAFRO	SS	0	ANA 1:40, anti-SSA (1,200 U/mL), anti-SSB (93.1 U/mL)	Cervix, chest	Fever, fluid accumulation	–	Hyperleukocytosis, CRP (184 mg/L), elevated IL-2, IL-6, VEGF	Thrombocytopenia (87×10 ⁹ /L)	Hypo ALB, hyper γ (IgG 21.5 g/L)	Renal dysfunction	Corticosteroid, tocilizumab, immunoglobulin, rituximab, belimumab
Okyar <i>et al.</i> 2023 (22)	73/F	HV-iMCD-TAFRO	SLE	0	ANA (>1:80), anti-dsDNA (+), anti-Sm (+), direct Coombs (+), RF (49 IU/mL), C3 (0.4 g/L), C4 (0.14 g/L)	Left axilla	Fever, weight loss, malaise, fluid accumulation, anemia (Hb 93 g/L)	Hepatomegaly	CRP (75 mg/L), ESR (49 mm/h)	Thrombocytopenia (0.2×10 ⁹ /L)	–	Skin lesions, arthritis	Prednisolone, hydroxychloroquine, azathioprine
Viallard <i>et al.</i> 2022 (23)	37/NA	PC-iMCD	SLE	10 years	anti-dsDNA (177 IU/mL), anti-SSA (+)	Axilla, cervix, groin, retroperitoneum	Fever, weight loss	–	CRP (12 mg/L)	–	Polyclonal hyper γ	Skin lesions	Hydroxychloroquine, thalidomide, corticosteroid, mycophenolate mofetil
Ono <i>et al.</i> 2021 (24)	43/M	Mix-iMCD-TAFRO	panniculitis	0	C3 (0.38 g/L), C4 (0.067 g/L)	Cervix, chest, abdomen	Fever, fatigue, fluid accumulation	–	Leukocyte (15.6×10 ⁹ /L), CRP (274 mg/L), IL-6 (46.7 pg/mL), VEGF (852 pg/mL)	Thrombocytopenia (down to 50×10 ⁹ /L)	–	Liver damage, acute kidney injury, adrenal lesions	Corticosteroids, cyclosporine, tocilizumab
Demirkan <i>et al.</i> 2021 (25)	16/F	UCD	SLE	0	anti-dsDNA (169.6 IU/mL), anti-Sm (+++), ANA (1:1,000), C3 (0.48 g/L), C4 (0.03 g/L)	Abdomen	Anemia (Hb 109 g/L)	Hepatomegaly, splenomegaly	CRP (11.05 mg/L), ESR (52 mm/h)	–	–	Arthritis	Surgery, prednisolone, hydroxychloroquine
Popovic Dragonjic <i>et al.</i> 2020 (26)	39/M	POEMS-MCD	MCTD	0	ANA (6.7 U/mL), anti-RNP 70 (>200 U/mL)	Bilateral groin, mediastinum	Fever, weight loss, fluid accumulation, anemia (Hb 91 g/L)	Hepatomegaly, splenomegaly	Leukocyte (14.9×10 ⁹ /L), CRP (118 mg/L), PCT (0.13 ng/mL), IL-6 (12.23 pg/mL)	Thrombocytosis (736×10 ⁹ /L)	Hypo ALB (25 g/L), polyclonal hyper γ (20.8%)	Skin lesions, polyneuropathy, central nervous system effect	Prednisone
Pan <i>et al.</i> 2020 (27)	45/F	iMCD	SS	0	ANA 1:320, anti-SSA (+), anti-SSB (+)	Mediastinum, subclavian, bilateral axilla, groin	Fever, weight loss, fluid accumulation	–	CRP (15.9 mg/L), ESR (50 mm/h), IL-6 (4,601 pg/mL)	–	Hypo ALB (25.2 g/L), hyper γ (IgG 22.1 g/L)	Secondary membranous nephropathy	Tocilizumab, methylprednisolone, cyclophosphamide
Soudet <i>et al.</i> 2018 (28)	44/F	PC-iMCD	SS	0	–	Axilla, groin, maxilla	Fever, night sweats, anemia (Hb 84 g/L)	–	CRP (150 mg/L)	–	Hypo ALB (26 g/L), hyper γ (IgM kappa 8.8 g/L)	Skin lesions, bone lytic lesions	Anakinra
Dei-Adomakoh <i>et al.</i> 2018 (29)	34/F	PC-iMCD	SS	0	–	Submandibular	Fluid accumulation, sweats, anemia (Hb 89 g/L)	–	CRP (206 mg/L), ESR (98 mm/h)	–	–	–	R-CHOP, chlorambucil, rituximab
Zhang <i>et al.</i> 2015 (30)	44/M	HV-MCD	SLE	0	ANA (1:160), anti-dsDNA (+), anti-SSA (+), reduced complement levels	Axilla, cervix, groin, mediastinum, retroperitoneum	Fever, weight loss, night sweats, fluid accumulation, anemia (Hb 89 g/L)	Hepatomegaly, splenomegaly	ESR (35 mm/h)	Thrombocytopenia (9×10 ⁹ /L)	Hypo ALB (27 g/L), hyper γ (IgG 19.3 g/L)	Kidney dysfunction, arthralgia	CHOP, immunoglobulin, steroids, danazol, thrombopoietin, rituximab, RCOP
Gracia-Cazaña <i>et al.</i> 2015 (31)	49/M	iMCD	MCTD	0	ANA (1:1,280), anti-Sm (+), anti-U1RNP (+)	–	Fluid accumulation	–	–	–	–	Skin lesions, muscle weakness, polyneuropathy	Corticosteroids, antimalarial drugs, rituximab, methylprednisolone
Oyaert <i>et al.</i> 2014 (32)	44/F	PC-iMCD	SLE	30 years	ANA (+), ENA (+), direct Coombs (+)	Mediastinum, abdomen, groin	Weight loss, fatigue, night sweats	–	CRP (19 mg/L), ESR (49 mm/h)	Thrombocytosis (452×10 ⁹ /L)	Hypo ALB, hyper γ (IgG 23 g/L)	–	Rituximab, R-CHOP, methylprednisolone
Motegi <i>et al.</i> 2013 (33)	62/F	HV-MCD	systemic sclerosis	–8 years	anti-SSA (+)	Axilla, cervix, groin, abdomen	Fluid accumulation	Splenomegaly	IL-6 (8.4 pg/mL)	–	Hyper γ	Skin lesions (sclerosis), calcinosis	Prednisolone
Hu <i>et al.</i> 2013 (34)	16/M	HV-MCD	SLE	–3 years	ANA (1:160), C3 (0.28 g/L), anti-dsDNA (787 IU/mL)	Axilla, cervix, groin	Fever	–	CRP (10.9 mg/L)	–	–	Skin lesions, kidney dysfunction	Fludarabine, cholera toxin, prednisone
Kerr <i>et al.</i> 2012 (35)	46/F	HV-iMCD	RA, SS	11 years	RF (78.5 IU/mL), anti-CCP (+), ANA (+), anti-SSA (+), anti-SSB (+)	Axilla, cervix, mediastinum, supraclavicular, groin	Weight loss, anemia (Hb 83 g/L)	Splenomegaly	CRP (39 mg/L), ESR (>140 mm/h)	–	Hypo ALB (30 g/L), polyclonal hyper γ	Skin lesions, arthritis	Sulfasalazine, hydroxychloroquine, methotrexate, rituximab
Xia <i>et al.</i> 2012 (36)	23/F	CD	SLE	0	ANA (1:320), anti-dsDNA (+), RF (27.3 IU/mL)	Axilla, cervix, infraclavicular, groin	Fever, weight loss, sweats, fatigue, fluid accumulation, anemia (Hb 90 g/L)	–	CRP (32.2 mg/L), ESR (130 mm/h)	–	Hypo ALB (3.08 g/L)	Skin lesions	Prednisolone
Charli-Joseph <i>et al.</i> 2011 (37)	31/F	MCD	SS	–1 year	–	Generalized LAP	Fever, weight loss, fluid accumulation, anemia (Hb 96 g/L)	Hepatomegaly, splenomegaly	–	–	–	Skin lesions, arthralgia, polyneuropathy, chronic renal disease	Immunosuppressor, prednisone
Rice <i>et al.</i> 2011 (38)	37/F	HV-UCD	sarcoidosis	0	–	Cervix	Unknown	–	–	–	–	–	Prednisone, methotrexate
Chrispal <i>et al.</i> 2010 (39)	16/F	HV-CD	MCTD	0	ANA (+), RF (+), direct Coombs (+), anti-U1RNP (136 U/mL), reduced complement levels	Mediastinum	Fever, fluid accumulation	–	–	–	Hypo ALB	Skin lesions, arthritis, nephrotic syndrome	Prednisolone, azathioprine, hydroxychloroquine
Yuri <i>et al.</i> 2008 (40)	64/F	HV-POEMS-MCD	SS	0	anti-SSA (+), anti-SSB (+)	Cervix	Fluid accumulation	–	–	–	–	Skin lesions, polyneuropathy	Prednisolone
Jacobs <i>et al.</i> 2007 (41)	66/F	HHV8-MCD	RA	NA	–	Axilla, mediastinum, retroperitoneum	Fever, fatigue, weight loss, night sweats, asthenia, anorexia, anemia (Hb 106 g/L)	Splenomegaly	ESR (100 mm/h)	–	–	–	Prednisone, methotrexate
Van de Voorde <i>et al.</i> 2004 (42)	21/F	MCD	SLE	8 weeks	Direct Coombs (+), ANA (+), Lupus anticoagulant (+), anti-SSA (1:640), decreased C3, C4	Cervix	Fever, weight loss, fatigue, fluid accumulation, anemia (Hb 84 g/L)	Hepatomegaly, splenomegaly	Leukocyte (15.3×10 ⁹ /L), CRP (284 mg/L), ESR (53 mm/h)	–	–	Arthritis, renal dysfunction	Prednisolone, CHOP, rituximab, glucocorticoids, methotrexate, cyclosporine
De Marchi <i>et al.</i> 2004 (43)	19/F	Mix-MCD	MCTD	7 years	ANA (+), ENA (+), direct Coombs (+), anti-platelets (+), anticardiolipin (+), Lupus anticoagulant (+)	Axilla, cervix, groin, abdomen, mediastinum	Fever, fluid accumulation, anemia (Hb 75.4 g/L)	Hepatomegaly, splenomegaly	Leukocyte (10.1×10 ⁹ /L), CRP (23.4 mg/L), ESR (115 mm/h)	Thrombocytopenia (98×10 ⁹ /L)	Hypo ALB (24 g/L), hyper γ (IgG 17.2 g/L)	Arthritis, acute renal failure, nephrotic syndrome	Glucocorticoid, methotrexate, cyclosporine A, IVIG, CHOP, azathioprine

CD, Castleman disease; CTD, connective tissue disorder; LAP, lymphadenopathy; F, female; HV, hyaline vascular; MCD, multicentric CD; SLE, systemic lupus erythematosus; Hb, hemoglobin; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; hypo ALB, hypoalbuminemia; M, male; iMCD, idiopathic MCD; TAFRO, thrombocytopenia, anasarca/ascites, reticulon fibrosis in bone marrow, renal dysfunction, organomegaly; SS, Sjögren's syndrome; IL, interleukin; VEGF, vascular endothelial growth factor; hyper γ , hypergammaglobulinemia; RF, rheumatoid factor; PC, plasma cell; POEMS, polyneuropathy, organomegaly, endocrinopathy, monoclonal paraprotein, skin changes; MCTD, mixed CTD; PCT, prolactin; UCD, unicentric CD; R-CHOP, rituximab, cyclophosphamide, vincristine, doxorubicin and prednisolone; RA, rheumatoid arthritis; HHV-8, human herpes virus-8.

References

19. Ma X, Li J, Fan L, et al. Systemic lupus erythematosus combined with Castleman disease and secondary paraneoplastic pemphigus: a case report. *Pediatr Rheumatol Online J* 2023;21:126.
20. Khabbazi A, Khalaji A, Pourbagherian O, et al. Castleman disease presenting as lymphadenopathy in a female with systemic lupus erythematosus: A rare case report. *Clin Case Rep* 2023;11:e7922.
21. Watanabe M, Haji Y, Hozumi M, et al. Combined B-cell immunomodulation with rituximab and belimumab in severe, refractory TAFRO syndrome associated with Sjögren's syndrome: A case report. *Mod Rheumatol Case Rep* 2023;7:475-9.
22. Okyar B, Torun B, Ökten ES, et al. Mimic or coincidentally? TAFRO syndrome and systemic lupus erythematosus: A case-based review. *Mod Rheumatol Case Rep* 2023;7:271-5.
23. Viallard JF, Roriz M, Parrens M, et al. Diagnostics différentiels de la maladie de Castleman. *Rev Med Interne* 2022;43:10S17-25.
24. Ono S, Yoshimoto K, Nishimura N, et al. Complete Resolution of a Case of TAFRO Syndrome Accompanied by Mediastinal Panniculitis, Adrenal Lesion, and Liver Damage with Hyperbilirubinemia. *Intern Med* 2021;60:1303-9.
25. Demirkan FG, Doğan S, Kalyoncu Uçar A, et al. Systemic lupus erythematosus complicated with Castleman disease: a case-based review. *Rheumatol Int* 2021;41:475-9.
26. Popovic Dragonjic L, Jovanovic M, Vrbic M, et al. Castleman's disease associated with mixed connective tissue disorder and cerebral ischaemia and vasculitis: A rare case and a diagnostic challenge for an infectologist. *Vojnosanit Pregl* 2020;77:872-7.
27. Pan Y, Cui Z, Wang S, et al. Idiopathic multicentric Castleman disease with Sjögren's syndrome and secondary membranous nephropathy: a case report and review of the literature. *BMC Nephrol* 2020;21:528.
28. Soudet S, Fajgenbaum D, Delattre C, et al. Schnitzler syndrome co-occurring with idiopathic multicentric Castleman disease that responds to anti-IL-1 therapy: A case report and clue to pathophysiology. *Curr Res Transl Med* 2018;66:83-6.
29. Dei-Adomakoh YA, Quarcoopome L, Abrahams AD, et al. Sjögren's and plasma cell variant Castleman disease: a case report. *Ghana Med J* 2018;52:61-5.
30. Zhang L, Jiao L, Wang SJ. Successful Treatment with Rituximab in a Patient with Castleman's Disease Complicated by Systemic Lupus Erythematosus and Severe Autoimmune Thrombocytopenia. *Chin Med J (Engl)* 2015;128:2551-2.
31. Gracia-Cazaña T, Delgado-Beltrán C, Concellón MA, et al. Mixed Connective Tissue Disease in a Patient With Castleman Disease and Hodgkin Lymphoma: Excellent Clinical Response to Rituximab. *Actas Dermosifiliogr* 2015;106:843-6.
32. Oyaert M, Boone E, De Ceuninck L, et al. Clonal multicentric Castleman's disease with increased free K light chains in a patient with systemic lupus erythematosus. *Ann Hematol* 2014;93:1255-7.
33. Motegi S, Yamada K, Shimizu A, et al. Tumoral calcinosis in systemic sclerosis associated with multicentric Castleman's disease. *J Dermatol* 2013;40:938-9.
34. Hu Y, Zhong X. Castleman's Disease Combined with the Development of Systemic Lupus Erythematosus. *Arch Rheumatol* 2013;28:143-4.
35. Kerr GS, Aggarwal A, McDonald-Pinkett S. A woman with rheumatoid arthritis, Sjögren's syndrome, leg ulcer, and significant weight loss. *Arthritis Care Res (Hoboken)* 2012;64:785-92.
36. Xia JY, Chen XY, Xu F, et al. A case report of systemic lupus erythematosus combined with Castleman's disease and literature review. *Rheumatol Int* 2012;32:2189-93.
37. Charli-Joseph Y, Fernández-Sánchez M, Saeb-Lima M, et al. POEMS syndrome: are current diagnostic criteria too exclusive? *J Am Acad Dermatol* 2011;65:415-7.
38. Rice BL, Farver CF, Pohlman B, et al. Concomitant Castleman's disease and sarcoidosis. *Am J Med Sci* 2011;341:257-9.
39. Chrispal A, Vasuki Z, Thomas EM, et al. Mixed connective tissue disorder and Castleman's disease. *J Assoc Physicians India* 2010;58:515-7.
40. Yuri T, Yamazaki F, Takasu K, et al. Glomeruloid hemangioma. *Pathol Int* 2008;58:390-5.
41. Jacobs SA, Vidnovic N, Patel H, et al. Durable remission of HIV-negative, Kaposi's sarcoma herpes virus-associated multicentric Castleman disease in patient with rheumatoid arthritis treated with methotrexate. *Clin Rheumatol* 2007;26:1148-50.
42. Van de Voorde K, De Raeve H, De Block CE, et al. Atypical systemic lupus erythematosus or Castleman's disease. *Acta Clin Belg* 2004;59:161-4.
43. De Marchi G, De Vita S, Fabris M, et al. Systemic connective tissue disease complicated by Castleman's disease: report of a case and review of the literature. *Haematologica* 2004;89:ECR03.