A Retrospective Study of Adult Patients with Parry Romberg Syndrome

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Background

- Parry Romberg Syndrome (PRS), also known as progressive hemifacial atrophy, is a rare variant of morphea
- Estimated incidence of 1:700,000
    - Predominantly children
- Etiology and pathophysiology are unknown:
    - Likely autoimmune, though theories also suggest contributing factors including trauma, infection, and genetics
- Characterized by atrophy of skin and subcutaneous tissue, including muscle, bone, and cartilage, classically in a unilateral hemifacial distribution
    - Potential neurologic, ophthalmologic, and oral/dental involvement
- Diagnosis is typically clinical, although supportive imaging and/or histology are often obtained
- Early diagnosis and treatment are crucial to prevent functional impairment and tissue damage

Objectives

- Retrospective case series of 10 adult patients with PRS
- Goals: review the diagnosis, clinical course, and management of PRS

Methods

- Queried MGH Research Patient Database (excludes pediatric patients) using the search words “Parry Romberg Syndrome,” “linear scleroderma,” “PRS,” and “progressive hemifacial atrophy” for patients seen between 2000 and 2021
    - Excluded patients with only linear morphea en coup de sabre (ECDS)
- Demographics, clinical presentation, and relevant imaging, biopsy results, treatment and follow-up were extracted from chart review

Results

Pt #	Sex	Race / Ethnicity	Age of Onset (years)	Years from Onset to Diagnosis	Method of Diagnosis	Imaging results	Additional Involvement			Overlapping Linear Morphea	Treatments	Disease course
							Neuro	Ophtho	Dental			
1	F	NA / Hispanic	30	19	Biopsy / Clinical	MRI, Negative	No	No	No	Yes	MTX, IVIG, MMF	Stable, then flared with pregnancy
2	F	White / Not Hispanic	26	NA	Biopsy	MRI, positive	No	No	No	Yes	Triamcinolone, MTX, HCQ, prednisone, filler	Stable
3	F	White / Not Hispanic	14	3	NA	MRI, positive	No	Yes	No	Yes	Steroid injections, fat transfer, silicone implant, HCQ, MTX, MMF, prednisone	Stable for ~30 years then progressive, re-stabilized with MTX
4	F	NA / Not Hispanic	49	16	NA (performed at NIH)	MRI, positive	Yes	Yes	Yes	No	Azathioprine, HCQ	Neurologically stable, progressive skin involvement
5	F	White / Not Hispanic	36	NA	Biopsy	CT and MRI, positive	Yes	Yes	Yes	No	Botulinum injections	NA
6	M	White / Not Hispanic	23	NA	Clinical	MRI, Negative	No	No	No	No	Fat grafting, botulinum injections, prednisone, MTX	Stable
7	F	Asian, White / Not Hispanic	20	5	Imaging / Clinical	CT, positive	No	No	No	No	Fat grafting	Stable
8	F	Other / Not Hispanic	15	NA	Clinical	MRI, positive	Yes	Yes	No	Yes	Glabellar muscle transfer, MTX, prednisone, colchicine, penicillamine, topical vitamin D analog	Stable for years then progressive (with stress and missed medication)
9	F	White / Not Hispanic	17	NA	Biopsy	Craniofacial imaging, positive	No	No	Yes	Yes	HCQ, MMF	Slowly progressive disease
10	F	White / Not Hispanic	43	19	Clinical	-	No	No	No	Yes	Prednisone, MTX	Stable for 20 years then progressive

Total patients	10
Gender	9 F, 1M
Race	*n*
White	7
Asian	1
Other	1
Ethnicity	*n*
Hispanic	2
Not Hispanic	8
Diagnosis	
Average age of onset	27.3 years
Average time between onset and diagnosis	12.4 years
Patients diagnosed by biopsy	4
Patients with positive imaging	7
Additional Symptoms/Organ Involvement	
Neurologic	3 (*cognitive impairment; seizure; memory loss; abnormal MRI*)
Ophthalmologic	4 (*glaucoma; post vitreous detachment; enophthalmos; exotropia; amblyopia; episcleritis*)
Dental	3
Headaches	5
Overlapping Morphea ECDS	6
Common additional diagnoses:	*n*
Androgenic alopecia	2
Scleroderma/systemic sclerosis	2
Raynaud’s syndrome	2
Treatments:	*n*
Methotrexate	6
Hydroxychloroquine	4
Mycophenolate mofetil	3
Prednisone	5
Azathioprine	1
Surgical	5 (*filler; fat transfer; silicone implant; glabellar muscle transfer*)
Positive Response to Treatment	8/9 reported
Disease flare after positive response	5
Average available follow up	5.9 years
Treated by:	
Dermatology	7
Rheumatology	2
Surgery	1

- Most patients were female (90%), white (70%), and not Hispanic (80%)
- Average age of onset was 27.3 years
    - Significant delay between disease onset and diagnosis: average 12.4 years
- 4 patients had supportive histopathology findings and 7 had positive imaging findings of atrophy (5 MRI, 2 CT, and 1 craniofacial imaging)
- 60% of patients had overlapping linear morphea ECDS
- 3 patients had associated neurologic symptoms (*cognitive impairment, seizures, and memory loss*)
    - 50% of patients reported headaches
- 3 patients had dental involvement and 4 had coexisting ophthalmologic disease (*glaucoma, enophthalmos, exotropia, and amblyopia*)
- Treatment modalities:
    - Immunosuppressive therapies: primarily methotrexate and prednisone
    - Surgical/cosmetic: primarily fat transfers
- 9 patients had available long-term follow-up, 8 of whom noted improved or stable disease with treatment
    - Of these 8, 5 noted some degree of disease flare during treatment (*1 during pregnancy and 1 with missed medication*)
    - Average available follow-up was 5.9 years

Limitations

- Small cohort size, retrospective single center approach, and relatively short follow-up time available

Conclusions

- In our small cohort, similar to other studies, almost all patients were female and white, with overlapping ECDS, arguing for these conditions existing on a spectrum
- Likely significantly more associated ocular and dental co-existing conditions compared to those reported in the pediatric population
- There is a significant delay in diagnosis of adult patients
- Further studies are needed to understand this rare condition in the adult population

References

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