DP04

Pigmented Purpuric Dermatosis (PPD) Associated with Radiologically Isolated Syndrome (RIS): Is There a Relationship?

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ABSTRACT

TITLE:

Pigmented Purpuric Dermatoses (PPD) associated with Radiologically Isolated Syndrome (RIS): Is There a Relationship?

HYPOTHESIS:

Pigmented Purpuric Dermatoses (PPD) is a group of benign and chronic dermatological disorders of unknown etiology that are characterized by extravasation of erythrocytes and deposition of hemosiderin. They are pathologically described as a T cell dyscrasia in the epidermis. Could this dermatological T cell disorder be involved in the genesis of RIS?

METHODS:

This is a single case report of a 23 y.o. woman who was seen at the age of 12 and 13 by dermatology and at the age of 23 by neurology.

RESULTS:

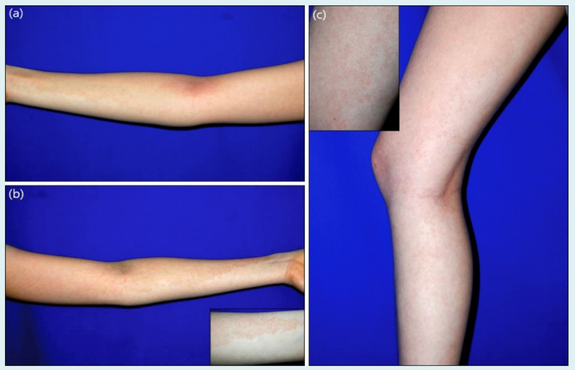
She first experienced severe lesions of PPD at the age 12 and 13 responding to steroids. She subsequently has experienced very tiny leisons on and off since. At age 23, migraine resulted in the obtaining of a MRI scan of the brain with multiple white matter lesions non-hemorrhagic located both juxtacortical and periventricular with a quarter size enhancing lesion in the left frontal temporal area. MRI of the cervical spine with and without contrast was negative for any abnormality. Cerebral spinal fluid analysis was positive for oligoclonal bands. However, she did not have one symptom and her neurological examination on several occasions has remained completely normal. Review of the literature looking for associations of PPD with CNS demyelination failed to show any prior cases of RIS, Clinically Isolated Syndrome (CIS), or Clinically Definite MS (CDMS). Therefore, this is the first case of PPD associated with RIS. Since PPD is a T cell dyscrasia, the extravasation of skin T cells may be associated with the development of immune mediated CNS radiographic lesions and demyelination.

CONCLUSION:

This is the first case report of a documented potential linkage between PPD and RIS.

CASE:

At the age of 10 she began to note lesions over her arms and legs. These red brown hyperpigmented patches in a band like pattern over the arms and legs. They were associated with no major symptoms except for cosmetic issues. She was treated several times with steroids and these seemed to resolve.

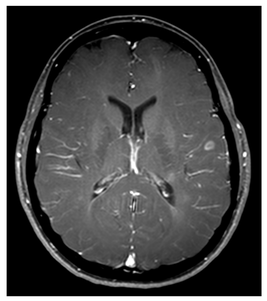


*No pictures available of the patient.

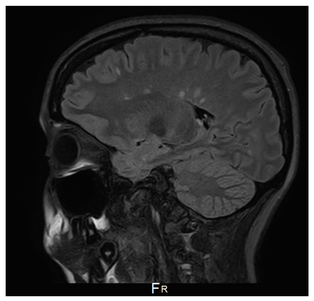
Je-Ho Mun, MD, Seung-Wook Jwa, MD, Margaret Song, MD, Hyun-Chang Ko MD, Byung –Soo Kim, and Moon-Bum Kim MD. "Extensive Pigmented Purpuric Dermotisis Successfully Treated with Pentoxifylline. *Annals of Dermatology, 2012 Aug:24(3), 363-365.*

RESULTS

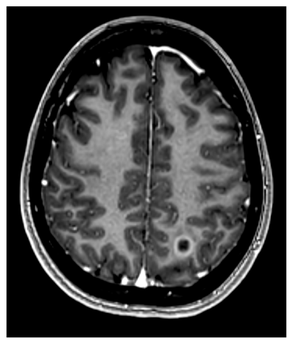
After age 12, she suffered only rare dermatological attacks. She had no other complaints until the age of 23 when she presented with migraine headaches. Her neurological examination was completely normal. Two series of MRIs were captured in November of 2014 and in March of 2015.



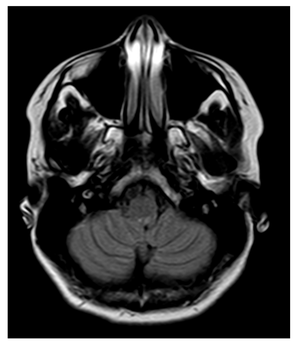
November 2014 Enhanced T1



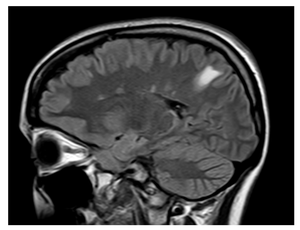
November 2014 Axial Flair



March 2015 T1 with Ring Lesion



March 2015 Axial Flair Infratentorial Lesion



March 2015 Saggital Flair

MRIs of the Cervical and Dorsal Spine Were Normal

WORKUP:

Visual Evoked Responses	Normal
Cerebral Spinal Fluid	2 WBCs, Protein 16.2, Glucose 65.2 Oligoclonal Bands Present
HIV	Negative
ANCA Abs: Acs anti MPO: Acs anti PR3:	 Negative Negative
ANTI-ENA Abs (Elisa Method): Sm Antigen Rmp Antigen Jo-1 Antigen Sci-70 Antigen Ro (SS-A) Antigen La (SS-B) Antigen	Negative Negative Negative Negative Negative Negative Negative
ANA Anti DNA C3 C 4 Complement Rheumatoid Factor Mycoplasma Pneumonia IGM	Negative Negative Negative Negative Negative
ESR CBC Urinalysis Beta-2 Glycoprotein1 AB	11mm Normal Normal Negative

DISCUSSION

The term "Radiologically Isolated Syndrome (RIS)" was coined by Okuda et. al., in a 2009 article that described a cohort of 44 patients with MRI findings that were consistent with disseminated demyelination that lacked any correlative symptomatology. Clinical evaluations at the time of initial imaging were normal in nearly all acquired cases. Follow-up occurred in 30 patients and longitudinal MRI data was obtained in 41 patients. 59% of patients demonstrated radiological progression, but only 10 patients converted to Clinically Definite MS (CDMS) with or without involvement of the corpus callosum.

DISCUSSION (Continued)

Proposed diagnostic criteria for the Radiologically Isolated Syndrome:

- The presence of incidentally identified CNS white matter anomalies meeting the following criteria
  - Ovoid, well circumscribed, and homogeneous foci with or without involvement of the Corpus Callosum.
  - T2 hyperintensities measuring > 3 mm and fulfilling Barkof criteria (at least 3 out of 4) for dissemination in space.
  - CNS white matter anomalies not consistent with a vascular pattern.
- No historical accounts of remitting clinical symptoms consistent with neurological dysfunction.
- The MRI anomalies do not account for clinically apparent impairments in social, occupational, or generalized areas of functioning.
- The MRI anomalies are not due to the direct physiological effects of substances(recreational drug abuse, toxic exposure) or a medical condition.
- Exclusion of individuals with MRI phenotypes suggestive of leukoaraiosis or extensive white matter pathology lacking involvement of the corpus callosum.
- The CNS MRI anomalies are not better accounted for by another disease process.

Okuda DT, Et al. "Incidental MRI anomalies suggestive of multiple sclerosis. ***Neurology*** **2009;72:800-805**

Pigmented Purpuric Dermatosis is a cutaneous T-cell lymphoid dyscrasia based on the frequency of monoclonality and preservation of persistent T-cell clonotypes. There is focal passive migration of lymphocytes into the epidermis with concomitant RBC extravasation.

Magro CM et al. "Pigmented Purpuric Dermatoses." ***American Journal of Clinical Pathology,*** **2007;128:218-229.**

Howard Weiner from Mass. General argued at CMSC 2015 that certain bacteria in the gut influences peripheral immune cells through the production of various pro-inflammatory molecules. This may play a role in modulating the lymphocytes that migrate into skin and brain. These cells may become activated, migrate into the brain and produce cytokines that result in demyelination. This may account for the RIS and the hyperpigmented pupuric dermatoses.

CONCLUSIONS

- This is the first case report that describes concomitant RIS & PPD.
- In order to establish a link, further molecular testing will be required to determine the relationship between the T cell clones in the brain and skin.
- Pentoxifylline is used to treat PPD and maybe useful in RIS.