Received: 3 March 2023 | Revised: 23 March 2023 | Accepted: 25 May 2023

DOI: 10.1002/ccr3.7519

CASE REPORT

Clinical Case Reports Open Access WILEY

Adrenal insufficiency as a rare manifestation of secondary antiphospholipid syndrome: A pediatric case report and review of articles

Homa Ilkhanipoor[1] | **Shabnam Hajiani Ghotbabadi**[2] | **Hamide Barzegar**[3] | **Atefeh Sedaghat**[4]

[1]Department of Pediatric Endocrinology and Metabolism, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

[2]Rheumatology Department, Shiraz University of Medical Sciences, Shiraz, Iran

[3]Neonatal Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

[4]Pediatric Endocrinology Department, Shiraz University of Medical Sciences, Shiraz, Iran

Correspondence
Shabnam Hajiani Ghotbabadi, Rheumatology Department, Shiraz University of Medical Sciences, Shiraz,Iran.
Email: sh_h86@yahoo.com

Key Clinical Message

Adrenal insufficiency is a rare, important manifestation of secondary antiphospholipid syndrome (APS) in pediatrics. In the presence of hematologic disorders such as thrombosis, we should consider APS.

Abstract

Adrenal insufficiency can rarely occur in the context of vascular disorders and thrombosis in patients with antiphospholipid syndrome. There are few case reports in pediatrics. Here, we present a pediatric case—the first pediatric case report in Iran—and review articles in this age group.

KEYWORDS

adrenal insufficiency, antiphospholipid syndrome, case report, pediatrics

1 | INTRODUCTION

Antiphospholipid syndrome (APS), which is characterized by thrombotic events and pregnancy morbidity, is a systemic autoimmune disease with constant positive anticardiolipin Antibodies.[1] APS is very rare among pediatric cases; in the largest cohort study, the incidence was 2.8%.[2] Secondary APS occurs in the presence of another disease, mostly systemic lupus erythematosus (SLE).[3] Hematologic and neurologic manifestations are common in pediatric cases.[4]

Adrenal insufficiency (AI) can occur in these patients in the context of vascular disorders including thrombosis and hemorrhage of adrenal glands.[5] AI is either primary, mostly due to autoimmunity, or secondary to hypothalamic–pituitary impairment.[6] Various clinical symptoms are due to impaired secretion of mineralocorticoid and glucocorticoid.[7] Acute AI usually presents with hypotension, abdominal pain, vomiting, fever, and hypovolemic shock, while in chronic cases it presents with fatigue and irritability.[6] Glucocorticoid deficiency also results in hypoglycemia, seizure, weakness, and hyperpigmentation.[8] Acute adrenal crisis is life-threatening and requires special attention and clinical suspicion.[7]

As one of the rare causes of AI in children is secondary APS, it must be considered especially in the presence of

should also be considered[17] which is the gold standard for diagnosis.

In the situation of adrenal crisis, treatment includes sufficient parenteral hydrocortisone, restoring intravascular volume, and normalization of serum sodium and glucose. Maintenance therapy includes glucocorticoid and mineralocorticoid replacement for primary AI and cortisol replacement for secondary AI.[19]

The more prevalent etiologies for primary AI are autoimmune destruction, congenital adrenal hyperplasia, adrenoleukodystrophy, drugs, infections, and hemorrhage.[20] Although it is rare, we should consider APS as an important cause of this fatal disease especially in the presence of hematologic manifestations such as thrombosis. We should also consider AI in patients with SLE or APS in the presence of inexcusable weakness and fatigue, salt craving, hypotension, and specially hyperpigmentation. Adrenal crisis, a fatal condition, would happen if we do not diagnose AI on time. If the patient presents with an adrenal crisis, we should not delay the treatment. As in our patients, with the suspicion of adrenal crisis, we sent laboratory samples and start the treatment emergently and after stabilization we discharged her with the treatment of underlying cause, SLE and secondary APS, as we mentioned above.

AUTHOR CONTRIBUTIONS

Homa Ilkhanipoor: Conceptualization; visualization; writing – original draft; writing – review and editing. **Shabnam Hajiani Ghotbabadi:** Conceptualization; supervision; writing – review and editing. **Hamide Barzegar:** Conceptualization; writing – original draft; writing – review and editing. **Atefeh Sedaghat:** Data curation; writing – original draft; writing – review and editing.

ACKNOWLEDGMENTS

The authors would like to thank Shiraz University of Medical Sciences, Shiraz, Iran and also Center for Development of Clinical Research of Nemazee Hospital and Dr. Nasrin Shokrpour for editorial assistance.

FUNDING INFORMATION

No funding was obtained for this study. All authors have read and approved the manuscript.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

DATA AVAILABILITY STATEMENT

All data generated or analyzed during this study are included in this published article.

ETHICS STATEMENT

The study protocol confirmed to the ethical guidelines of the 1975 Helsinki Declaration. The publication of this case was approved by the ethics committee of Shiraz University of Medical Sciences(IR.SUMS.MED.REC.1401.544). We have written informed consent obtained from the parents of the patient for publication of this case report.

CONSENT

We have written informed consent obtained from the parents of the patient for publication of this case report.

ORCID

Homa Ilkhanipoor https://orcid.org/0000-0002-8087-8432
Shabnam Hajiani Ghotbabadi https://orcid.org/0000-0003-2029-4619
Hamide Barzegar https://orcid.org/0000-0003-1114-5937

REFERENCES

1. Madison JA, Zuo Y, Knight JS. Pediatric antiphospholipid syndrome. *Eur J Rheumatol*. 2020;7(Suppl 1):S3-S12.
2. Cervera R, Piette JC, Font J, et al. Antiphospholipid syndrome: clinical and immunologic manifestations and patterns of disease expression in a cohort of 1,000 patients. *Arthritis Rheum*. 2002;46(4):1019-1027.
3. Rahman A, Raimondo MG. Secondary antiphospholipid syndrome. In: Meroni PL, ed. *Antiphospholipid Antibody Syndrome: from Bench to Bedside*. Springer international publishing; 2015:233-248.
4. Avcin T, Cimaz R, Silverman ED, et al. Pediatric antiphospholipid syndrome: clinical and immunologic features of 121 patients in an international registry. *Pediatrics*. 2008;122(5):e1100-e1107.
5. Espinosa G, Santos E, Cervera R, et al. Adrenal involvement in the antiphospholipid syndrome: clinical and immunologic characteristics of 86 patients. *Medicine*. 2003;82(2):106-118.
6. Arlt W, Allolio B. Adrenal insufficiency. *Lancet*. 2003;361(9372):1881-1893.
7. Husebye E, Løvås K. Pathogenesis of primary adrenal insufficiency. *Best Pract Res Clin Endocrinol Metab*. 2009;23(2):147-157.
8. Antal Z, Zhou P. Addison disease. *Pediatr Rev*. 2009;30(12):491-493.
9. Avčin T, Cimaz R, Rozman B, Group* P-ARC. The Ped-APS Registry: the antiphospholipid syndrome in childhood. *Lupus*. 2009;18(10):894-899.
10. Levy EN, Ramsey-Goldman R, Kahl LE. Adrenal insufficiency in two women with anticardiolipin antibodies. *Arthritis Rheum*. 1990;33(12):1842-1846.
11. Rumsey DG, Myones B, Massicotte P. Diagnosis and treatment of antiphospholipid syndrome in childhood: a review. *Blood Cells, Mol Dis*. 2017;67:34-40.
12. Pelkonen P, Simell O, Rasi V, Vaarala O. Venous thrombosis associated with lupus anticoagulant and anticardiolipin antibodies. *Acta Paediatr*. 1988;77(5):767-772.