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Case report

Retinoic acid syndrome in a elderly male with psoriasis- A case report

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A B S T R A C T

The retinoic acid derivatives are used for disorders of keratinization such as psoriasis. Retinoic acid syndrome is a cytokine release syndrome, commonly encountered in patients with acute promyelocytic leukaemia (APL). It is very rarely described in psoriasis seconday to use of retoind derivatives. Here we report a case of elderly male with psoriasis presenting with acitretin induced retinoic acid syndrome.

1. Introduction

Retinoic acid syndrome is multisystem disorder presenting with a constellation of symptoms. It is commonly encountered in patients with acute promyelocytic leukaemia (APL) as an adverse effect after administration of all-trans retinoic acid (ATRA) with incidence range from 2 to 27% [1]. This syndrome is very rarely described in psoriasis seconday to use of retoind derivatives [2]. Acitretin, a synthetic retinoid, is the pharmacologically active metabolite of etretinate, used in treating psoriasis and other keratinizing disorders [3]. Here we report a case of elderly male with psoriasis presenting with acitretin induced retinoic acid syndrome.

2. Case report

A 67year old man with 8years history of psoriasis presented to Emergency Department (ED) with acute onset dyspnea, cough, hemoptysis and fever. The symptoms progressed rapidly over past 4days. Physical examination revealed tachypnea (RR- 40cycles/min), tachycardia (PR-108bps), blood pressure of 120/80 mmHg, temperature 101F and SpO2 was 60% in room air. Chest auscultation revealed bilateral coarse crepetations and scattered ronchi. His laboratory investigations showed Leucocytosis(TC- 13000 cells/cumm) with 81% neutrophils, serum creatinine of 1.3mg/dl and normal liver enzymes (Table 1). His arterial blood gases revealed hypoxia (pH- 7.36, pO2-64 with Fio2 80%, pCo2-36.9 and HCO3- 21.1). After a provisional diagnosis of CAP he was started on broad spectrum antibiotics. A chest radiograph at the time of admission revealed dense consolidation involving both the lungs (Fig. 1). The patient deteriorated over next 24hrs with new onset hypotension, hematuria, worsening of symptoms, saturation and laboratory values (Table 1). His sputum and blood culture reports were negative, non-reactive HIV status, CRP was normal and 2D-Echo revealed normal LV function with LVEF of 60%. The patient tested negative for CTD and vasculitis screening (negative ANA and ANCA reflux tests). HRCT thorax revealed bilateral interstitial and alveolar infiltrates with consolidation and ground glass opacities (Fig. 2). After reviewing his treatment history it was revealed that he was on ACETRETIN 35mg orally for past 6months as a part of his psoriasis treatment.

With a background of clinical picture, laboratory investigations, negative culture reports, normal CRP levels and recent use of acetretin a diagnosis of Retionoic Acid Syndrome (RAS) was made, acetretin was withdrawn and he was started on i.v. methylprednisolone 1 gm daily. The patient showed dramatic improvement after 48hours of steroid administration. Oxygen requirement was reduced with decreased respiratory rate, resolution of crepetations and normalisation of blood pressure. Follow-up lab reports showed improvement in leukocyte count, serum creatinine and other parameters (Table 1) and resolution of opacities on chest xray (Fig. 3). The methylprednisolone was tapered to 120 mg daily in three divided doses which was further tapered gradually over a period of 2weeks. Follow-up chest xray after 9days of steroid therapy showed complete resolution of opacities (Fig. 4).

3. Discussion

All trans retinoic acid (ATRA) syndrome also known as differentiation syndrome is a condition that was first described as a life-threatening complication in patients with acute promyelocytic leukemia after therapy with all-trans-retinoic acid (ATRA) [4]. The pathogenesis of RAS is poorly understood and proposed mechanism is that ATRA treated APL cells release inflammatory cytokines, such as interleukin (IL)-1b, IL-6, IL-8 and tumor necrosis factor alpha (TNF-a) interacting with the haemostatic system. These inflammatory cytokines may play a role in the development of RAS [1]. The final common

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Table 1
Showing the laboratory investigations, oxygen saturation on various days of admission and serial improvement in oxygen saturation values after administration of i.v. steroids.

	Day1 (Admission Day)	Day3	Day7	Day12
Hb	8.4 gm%	6.8 gm%	8.4 gm%	9.3 gm%
TC(cells/cumm)	13,184	16,800	10,100	10,184
Neutrophils	81%	88%	76%	81%
Eosinophils	0.6%	0.1%	1%	0.8%
Monocytes	10%	5%	3.8%	4.1%
Lymphocytes	7%	6%	19%	13.8%
Platelets (cells/cumm)	1.6 lakh	1.4 lakh	–	1.9 lakh
Prothrombin time	14s	16.8s	–	–
aPTT	39.6s	38.2s	–	–
S. Creatinine	1.3mg/dl	1.8mg/dl	1.1mg/dl	0.9mg/dl
CRP	15.6mg/dl	25.2mg/dl	–	–
O2 Saturation	60% (RA)	55% (RA)	80%(RA)	94%(RA)
Steroid dose (Day of steroid)	–	Methyprednisolone 1 gm i.v.OD* 3days (Day 1 of steroid)	Methyprednisolone 40mg i.v. TID (Day 4 of steroid)	Methyprednisolone 40mg i.v. BID (Day 9 of steroid)
CXR	Bilateral diffuse infiltrates (Fig. 1)	–	Less dense opacities compared to previous film. (Fig. 3)	Complete resolution of opacities. (Fig. 4)

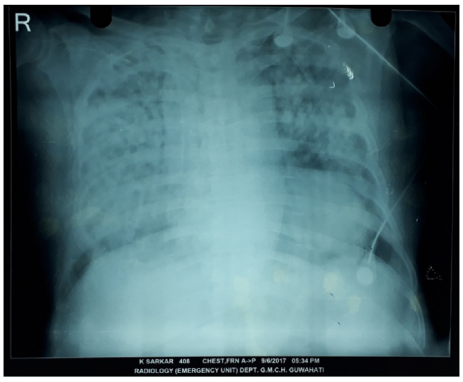

Fig. 1. Chest xray of the patient on the day of admission showing diffuse inhomogenous opacity involving both the lung fields.

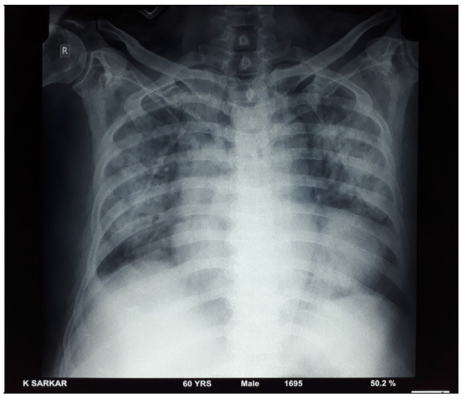

Fig. 3. Chest xray after 3days of steroid administration (Day 7 of hospitalisation) showing less dense opacities compared to previous film.

pathway is an insult to the endothelium followed by a predictable series of events, including, oedema, haemorrhage, fibrinous exudates, leukocyte infiltration and respiratory failure [5].

Retinoic Acid Syndrome is a diagnosis of exclusion and the diagnosis is made based on various clinical features in the absence of other causes. It has been suggested that the diagnosis be based on the presence of at least three of the following signs and/or symptoms in the absence of alternative explanations: fever, weight gain, respiratory distress, pulmonary infiltrates, pleural or pericardial effusions, hypotension and renal failure [6].

RAS less frequently described with other retinoids. Previous literature review showed only 4 case reports of acetretin induced RAS [2,7–9], no case has been reported from India. Here we report a case of elderly male who was a diagnosed case of psoriasis and was started of acetretin, later presented with dyspnea, fever, hemoptysis, hypoxic respiratory failure, diffuse pulmonary infiltrates and acute renal failure with negative sepsis screening, features consistent with RAS. He was started on corticosteroid therapy and showed a rapid response with resolution of symptoms and radiological opacities. This rapid response to glucocorticoids is also supportive of the diagnosis of RAS.

4. Conclusion

Acitretin has been widely used in treatment of psoriasis and a number of difficult-to-treat hyperkeratotic and inflammatory dermatoses. Though rare, acetretin induced respiratory adverse effects should be looked for and diagnostic possibility of life threatening complication RAS should be considered in such patients. High clinical suspicion and early administration of steroids to prevent mortality is of utmost importance

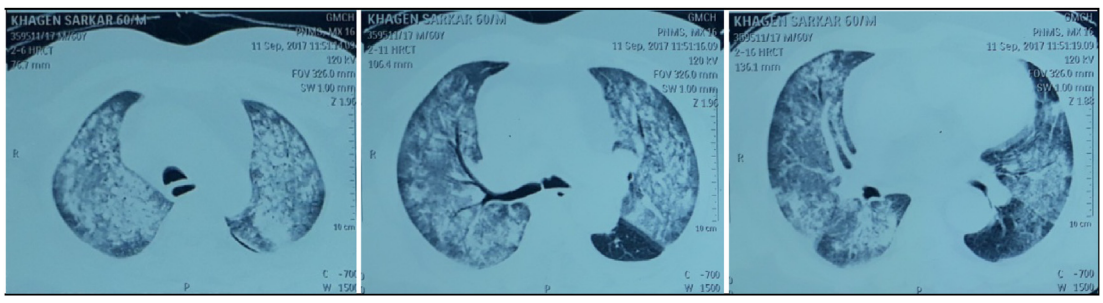

Fig. 2. HRCT showing diffuse alveolar and interstitial infiltrates with dense consolidation and ground glassing.

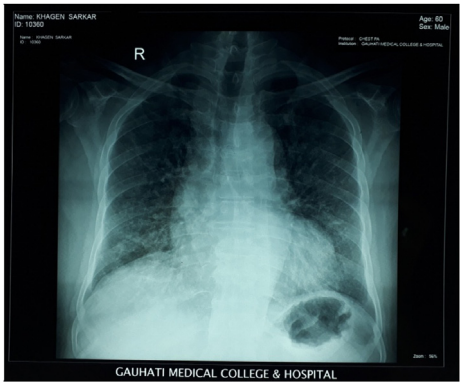

Fig. 4. Chest xray after 9days of steroid administration (Day 12 of hospitalisation) showing complete resolution of opacities compared to previous film.

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