ORIGINAL RESEARCH PAPER

Diabetology

A RARE CASE OF INSULIN EDEMA SYNDROME

KEY WORDS:

Dr. V. Padma

Dr. M. Ishaivanan

Dr. P. C. Sandhya

Dr. Sharath

Dr. Cahitanya

Dr. Rahul

Dr. Sujana

Dr. Heshish

INTRODUCTION

Insulin oedema syndrome is a rare combination of insulin therapy. This phenomenon is seen in patients with uncontrolled diabetes mellitus after initiation of insulin therapy during rapid correction and tight correction of glucose levels.

We report a case of insulin oedema syndrome of poorly controlled glucose levels and elevated Hba1c.

Case Presentation

A 35-year-old patient came to casulity with complaints of breathlessness for one day of MMRC grade -4. Complaints of abdominal pain for 2 days diffuse throughout the abdomen.Complaints of nausea/ vomiting for 1 day. The patient is a known case of insulin-dependent diabetes mellitus on irregular medication. The patient was previously admitted for similar complaints in the past 3 weeks and treated for diabetic ketoacidosis. the patient was treated with IV insulin infusion and then discharged with human insulatard 15unit-0-15units. Patient developed Bilateral pitting pedal edema and the patient reported that while stopping insulin therapy patient's symptoms were relieved. During his hospital stay,he refused to take medication.

On examination patient was conscious oriented afebrile nourished thin build bilateral pitting pedal edema present 4+ up to his knees no pallor/icterus. Systemic examination cardiovascular system revealed Noram's heart rate rhythm with no added sounds, respiratory system revealed normal vesicular breath sounds with no added sounds. Abdominal examination reveaed soft diffuse tenderness present throughout the abdomen.

Laboratory Results

CBC	
HB(g/dl)	12.8
TOTAL WBC COUNT (per microliter)	7500
ABG	
PH	7.1
PO2	89
Hco3	12
Pco2	39
Urine routine	
Pus cells	2-3
Urine ketone	+++
Glucose	+++
Albumin	Nil
Renal function test	
Urea(mg/dl)	20
Creatinine (mg/dl)	0.6
Uric acid(mg/dl)	3.3

2DECHO done showed normal study. Bilaterla lower lib doppler done showed low clinical suspicion for venous thrombosis.

DISCUSSION

Insulin oedema syndrome is an adverse effect of insulin therapy that occurs when rigorously correcting hyperglycemia in poorly controlled diabetes patients. Low body mass index and younger patients with newly diagnosed type 1 diabetes are at increased risk of developing insulin oedema. Insulin oedema can range from mild lower extremity swelling to severe cases with anasarca, ascites, and pleural effusion. The syndrome's mechanisms include increased capillary permeability, renal salt retention, and vasodilation, leading to fluid extravasation and oedema.
Insulin and hyperglycemia play a role in these mechanisms, affecting vascular permeability.

Treatment options include conservative management with salt and fluid intake restriction, diuretics, epinephrine, or ephedrine in refractory cases, and adjusting insulin dosage. Cessation of insulin usage may alleviate oedema, but it can lead to complications, like diabetic ketoacidosis. In some cases, diuretics like furosemide can help improve symptoms.

REFERENCES

1] M. Wong and T. Balakrishnan, "Anasarca in newly diagnosed type 1 diabetes: review of the pathophysiology of insulin edema," Cureus, vol. 12, no. 3, Article ID e7234, 2020 Mar 10.
[2] P. Lee, J. Kinsella, M. Borkman, and J. Carter, "Bilateral pleural effusions, ascites, and facial and peripheral oedema in a 19- year-old woman 2 weeks following the commencement of insulin lispro and detemir-an unusual presentation of insulin or- dema," Diabetic Medicine, vol. 24, no. 11, pp. 1282–1285, 2007 Nov.
[3] G. N. Kalambokis, A. A. Tsatsoulis, and E. V. Tsianos, "The edematogenic properties of insulin," American Journal of Kidney Diseases, vol. 44, no. 4, pp. 575–590, 2004 Oct.
[4] P. A. Hart, M. D. Bellin, D. K. Andersen et al., "Type 3c (pancreatogenic) diabetes mellitus secondary to chronic pancreatitis and pancreatic cancer," The Lancet Gastroenterology & Hepatology, vol. 1, no. 3, pp. 226–237, 2016 Nov.
[5] S. Laroche, H. Wucher, Y.-L. Nguyen, J. Timsit, and E. Larger, "Case report: insulin oedema and acute renal failure," Diabetes Care, vol. 36, no. 5, p. e65, 2013 May.
[6] D. J. Evans, K. Pritchard-Jones, and B. Trotman-Dickenson, "Insulin oedema," Postgraduate Medical Journal, vol. 62, no. 729, pp. 665–668, 1986 Jul.
[7] J. Kolanowski, M. Gasparo, P. Desmecht, and J. Crabbé, "Further evaluation of

the role of insulin in sodium retention associated with carbohydrate administration after a fast in the obese," European Journal of Clinical Investigation, vol. 2, no. 6, pp. 439–444, 1972 Nov.

[8] A. Chelliah and M. R. Burge, "Insulin edema in the twenty-first century: review of the existing literature," Journal of Investigative Medicine, vol. 52, no. 2, pp. 104–108, 2004 Ma.