

Images

Anterior chamber infiltration of CAR T-cells

Elad Jacoby^{a,b}, Ofira Zloto^{b,c,*}, Vicktoria Vishnevskia Dai^{b,c}^a Division of Pediatric Hematology, Oncology and BMT, The Edmond and Lily Safra Children's Hospital, Sheba Medical Center, Tel Hashomer, Israel^b Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel^c Goldschleger Eye Institute, Sheba Medical Center, Tel Hashomer, Israel

ARTICLE INFO

Keywords:
CAR T cells
Leukemia

ABSTRACT

A unique image of anterior chamber infiltration in a 2-year-infant with leukemia, treated with CD19 CAR T cells. Despite significant lymphopenia and resemblance of fungal infection initially, biopsy and cytologic analysis from anterior chamber fluid confirmed that this was CAR T-cell infiltration, likely targeting microscopic leukemia, unknown to us treating physicians. This is a unique case in 2 aspects: first, to state the high quality of CAR T-cell trafficking; and second – given the wide use of these cells currently, this image may help educate clinicians regarding this potential diagnosis.

A two-year-old child received CD19-CAR T-cells for combined CNS-relapse of acute-lymphoblastic-leukemia. On day 8, a bright plaque was noted in his right-eye (Fig. 1-A). Ophthalmologic-examination showed presence of white soft material in the anterior-chamber. No keratic-precipitates, synechia, iris-nodules, cells or flair and posterior uveitis were noted. Intra ocular pressure was normal. The plaque was aspirated and cytology-analysis confirmed presence of CD3⁺ cells and lack of leukemic cells (Fig. 1-B). Polymerase-chain-reaction analysis confirmed CAR-specific-transcript for the transcript between CD28 and CD3z (337bp size) (Fig. 1-C). CAR T-cells were shown to traffic to distant disease sites, and should be considered in the differential diagnosis as a rare cause of unusual ophthalmic infiltrates post treatment, likely targeting microscopic leukemic-cell infiltration in the eye.

Patient consent

This report does not contain any personal identifying information.

Funding

No funding or grant support.

Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

* Corresponding author. Goldschleger Eye Institute, Sheba Medical Center, Tel Hashomer, Israel.

E-mail address: ozloto@gmail.com (O. Zloto).

<https://doi.org/10.1016/j.ajoc.2021.101223>

Received 2 December 2020; Received in revised form 30 May 2021; Accepted 18 October 2021

Available online 22 October 2021

2451-9936/© 2021 The Author(s).

Published by Elsevier Inc.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

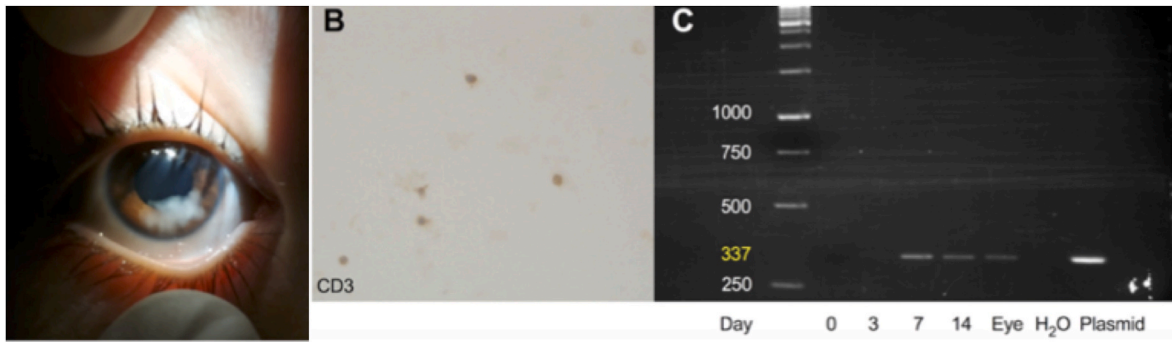


Fig. 1. Anterior chamber infiltration of CAR T-cells.

A- Clinical picture- A bright plaque was noted in his right-eye

B- Cytology-analysis- presence of CD3⁺ cells and lack of leukemic cells

C- Polymerase-chain-reaction analysis- This is shown in peripheral blood of the patient on day 0 (pre-infusion), +3, +7, +14 and the anterior chamber wash on day +9. Controls included H₂O and CAR plasmid DNA.

Declaration of competing interest

The authors have no potential conflicts of interest.

Acknowledgements

None.