

Noncultured Epidermal Suspension Procedure of Vitiligo Surgery Using Freeze-Dried Trypsin Coated on Silicon Pellets

Abstract

Non-cultured epidermal suspension technique is currently the surgical treatment of choice for vitiligo. Storage of trypsin ethylenediaminetetraacetic acid solution has a stringent requirement. We propose usage of freeze-dried trypsin for the procedure which can be kept in usual refrigerator at 2-8°C. This can help us to perform the procedure at resource poor settings.

Keywords: NCES, trypsin, vitiligo

Noncultured epidermal suspension (NCES) technique is currently the surgical treatment of choice for vitiligo worldwide.^[1] Trypsin is an essential component of the procedure. Due to its specific requirement for storage,^[2] it is difficult to acquire and store it in resource-poor settings making NCES out of reach of many dermatologists. Repeated freeze-thaw cycles can further alter the enzymatic activity.

We propose a solution to this problem using freeze-dried trypsin. Trypsin is converted to the form of small granules that are coated on silicon pellets [Figure 1]. They can be stored in a usual refrigerator (2–8°C). These pellets are to be washed with Dulbecco's modified eagle medium

(DMEM) and dried trypsin gets dissolved in the solution which can be used for the procedure.

For the procedure, we need freeze-dried trypsin, test tubes, a dropper, DMEM medium, petridishes, and strainer. To prepare the trypsin solution, DMEM is poured into the vial containing trypsin-coated silicon pellet and is shaken a few times. Trypsin gets dissolved into the DMEM, the solution then is passed through the strainer to separate it and the silicon pellets are discarded. After obtaining the tissue sample it is kept in the trypsin solution dermal side facing downward and in contact with the solution and incubated for 45 min at 37°C. After the separation of the cells rest of the steps are performed as in standard NCES.



Figure 1: Required chemicals and apparatus for NCES including freeze-dried trypsin coated on silicon pellets (inset)



Figure 2: Pre and post-surgery picture after 2 months of noncultured epidermal Suspension using freeze-dried trypsin on a vitiligo lesion over the forehead

We found satisfactory improvement in stable vitiligo lesions with NCES done with this preparation [Figure 2]. The preparation could be cost-effective in dermatosurgery settings where NCES is done infrequently as it does not need special requirements for storage. Comparative trials are required to prove its efficacy in comparison to NCES done with standard trypsin solution.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will

not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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