COMPREHENSIVE ASSESSMENT OF SOCKET PRESERVATION TECHNIQUES: EXPLORING THE EFFECTIVENESS OF TITANIUM-PRF AND DEMINERALIZED FREEZED DRIED BONE ALLOGRAFT IN IMPLANT DENTISTRY

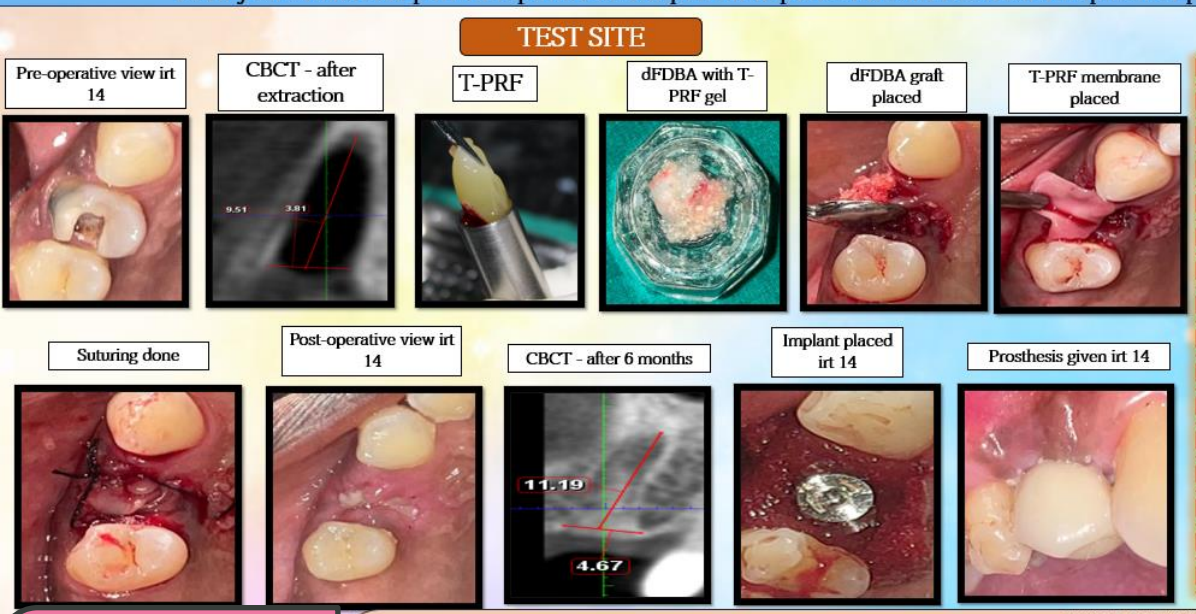
To preserve the original alveolar ridge dimensions and to provide an ideal implant location, alveolar socket preservation procedures are often required. A demineralized freeze-dried bone allograft (DFDBA) is an allograft composed of demineralized bone matrix which contains bone morphogenic protein (BMP) that causes new bone formation. T-PRF produces denser fibrin structure, faster epithelialization and has osteoinductive properties similar to those of bone and preserves tissue volume.

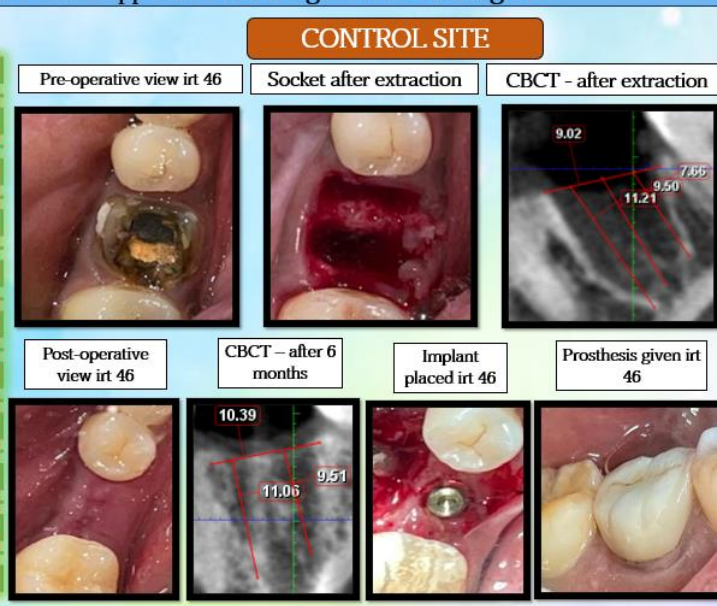
AIM AND OBJECTIVE

To evaluate the effectiveness of Titanium-prepared Platelet rich Fibrin (T-PRF) gel combined with demineralized freeze-dried bone allograft (dFDBA) for Socket Preservation versus spontaneous healing with the aid of Cone Beam Computed Tomography (CBCT).

CASE PRESENTATION

A 35 year old female patient reported to out-patient department with the chief complaint of pain in the upper and lower right back teeth region.





RESULTS

Significant difference was seen in crestal bone height and crestal bone width in the sockets grafted with T-PRF along with dFDBA when compared to natural healing of socket.

DISCUSSION

- Titanium in T-PRF is more effective in activating platelets than the silica particles in other PRFs.. We have used T-PRF as a novel biomaterial used in socket preservation along with dFDBA and compared the bone width and height to spontaneous healing of socket which showed increase of about 1.68mm and 0.15mm in height and 0.86mm and 0.36mm in width in the test site and control site respectively which is in accordance with the study by *Thakkar et al (2016)* and *Dhamija et al (2020)* stating that preserving socket with dFDBA and PRF reduces the loss of ridge width and height after extraction as dFDBA has a osteoinductive property and helps in formation of new bone along with T-PRF which also has the similar property and denser fibrin structure as said by *Tunali et al (2013)*
- Also, T-PRF group resulted in higher fractal dimensions on soft tissue healing after extraction when compared to PRF as quoted by *Ustaoglu G et al (2019)*
- *Gummaluri SS (2020)* evaluated the effectiveness of T-PRF and L-PRF in the management of intrabony defects and reported that T-PRF group exhibited a significantly higher defect fill compared to the L-PRF group.

CONCLUSION

Socket preservation with the use of T-PRF gel combined with dFDBA is a favorable technique that preserves the dimension of the ridge. Further randomized controlled trials are needed to validate this novel biomaterial for socket preservation

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