

## Ideas and Innovations

# A novel and innovative technique of using a disposable syringe and mesh for harvesting fat for structural fat grafting

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## ABSTRACT

**Background:** Successful restoration of structure and function using autologous free fat grafts has remained elusive. Review of literature shows that various harvesting and preparation techniques have been suggested. The goal of these techniques is to obtain greater adipocyte cell survival and consequently more reliable clinical results. **Materials and Methods:** In our technique, a piece of mesh is kept at one end of the lipoaspiration syringe, which is then connected to the Suction pump. As one syringe fills, it is replaced by another one until the required amount of fat is obtained. **Results:** By using a polypropylene mesh in our technique, we can separate the transfusate from the harvested fat graft during harvesting itself. The fat graft thus obtained is dense and concentrated, with fewer impurities. **Conclusion:** Hence, we recommend our technique as a reliable method for extracting sterile emulsified fat in an economical way.

## KEY WORDS

Centrifugation; emulsified fat; fat grafting; liposuction aspiration; mesh

## INTRODUCTION

Restoration of structure and function using autologous free fat grafts has always been a challenge. The advent and refinement of liposuction and lipoinjection techniques, abundant donor-tissue availability, and relative ease of harvesting have made autologous fat an attractive material for use as soft-tissue filler.

Fat is harvested using either (1) syringe aspiration or (2) liposuction aspiration,<sup>(1)</sup> performed with a liposuction pump (Byron Medical, Tucson, Ariz.). A standard Coleman aspirator cannula (Byron Medical) with a curettage tip is used for both techniques of fat aspiration.

According to Elam *et al.*<sup>(3)</sup> the suction pressures can vary from 15 in. of mercury (375 mm mercury) to 30 in. (750 mm mercury) (760 mm = 1 atm). Ideal liposuction vacuum pressure for safely harvesting adipocytes is 20 in. of mercury (500 mm mercury).<sup>(2)</sup>

Syringe aspiration is tedious if the amount of fat required is substantial. When the liposuction aspiration using a liposuction pump is performed the whole suction system, and the container needs to be kept sterile. Moreover, both these techniques require prolonged centrifugation to separate the debris. (Figure 1) We have

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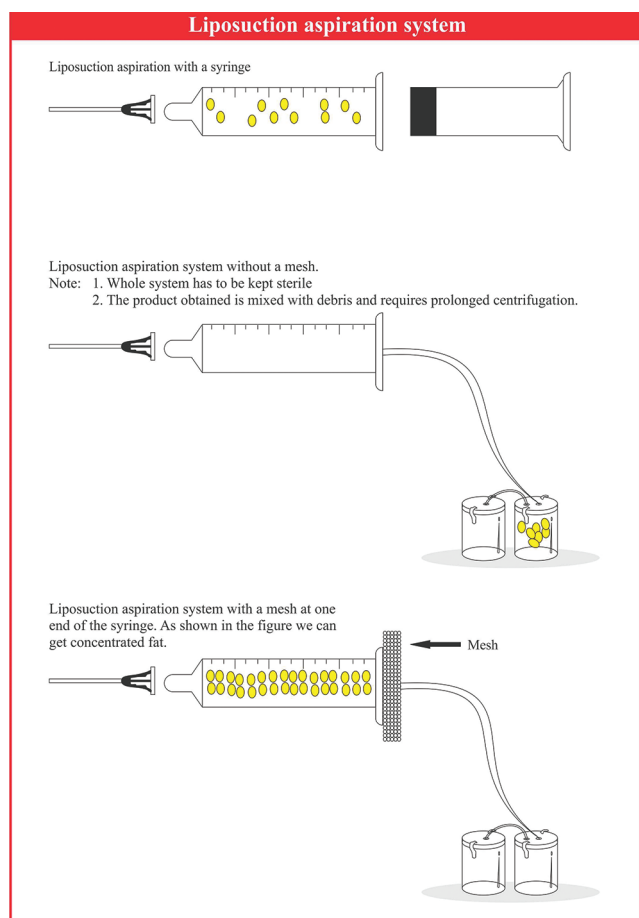


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**Figure 1:** The above picture helps us to compare the three modalities of lipoaspiration and also helps us to note the advantage of our technique

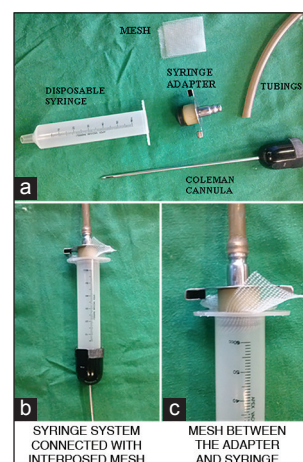
devised a novel method of lipoaspiration to overcome these problems.

## MATERIALS AND METHODS

Materials required 20-50 cc disposable syringe, a piece of  $2 \times 2$  cm polypropylene mesh, lipoaspiration suction pump (Figure 2a).

In liposuction aspiration, a suction pump is used. In our technique, a piece of polypropylene mesh is kept at one end of the lipoaspiration syringe, which is then connected to the Suction pump. (Figure 2b & 2c) As one syringe fills, it is replaced by another one until the required amount of fat is obtained. These syringes are then centrifuged and the emulsified fat thus obtained is used for grafting (Video 1).

By using a polypropylene mesh in our technique, we are able to separate the transfusate from the harvested fat during harvesting itself. The fat graft thus obtained will be dense and concentrated.



**Figure 2:** (a) Materials required for the procedure, (b) connected syringe mesh system, (c) close-up view of the mesh

## RESULTS

In our experience, the fat graft obtained by this method is found to be concentrated and has fewer contaminants. This method also has the added advantage of having a short processing time, from harvesting to grafting.

## CONCLUSION

Fat grafting remains unpredictable, and various anecdotal harvesting and preparation techniques have been advocated. Our method is a more economical and an easier way to extract sterile emulsified fat. Duration of the surgery is reduced as our method has a short processing time. As it is a simple method, it can be practiced even in day care centers. Hence, we recommend our technique as a reliable and routine method for extracting sterile emulsified fat in an economical way.

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