

Role of dental impression compound in plastic surgery: Know more about it

Sir,

I read with much interest an article entitled 'dental impression compound as an effective splint for maintenance of ear elevation in microtia reconstruction'^[1] published in your esteemed journal. I was elated to know that the impression compound material, which we routinely use in dentistry to make preliminary intraoral impressions of edentulous jaws;

has its valuable application in the field of plastic surgery as well. My inquisitiveness led me to explore more about its uses in plastic surgery. A thorough PubMed search with the keyword dental impression compound revealed 85 articles that included articles from journals of numerous medical disciplines such as plastic surgery, cardiology, radiology, rheumatology, and so on, other than dentistry.

Thadani and Ladani in their article entitled 'a new method for training of ear framework creation by silicon dental impression material' published in your journal; have prepared a three-dimensional model of harvested costal cartilage with impression compound cake.^[2] The usefulness of this thermoplastic material in the field of oculoplasty was reported in 1990 by Betharia *et al.* who successfully used compound as a postsurgical intraocular stent in the socket reconstruction surgery for maintenance of the proper apposition of the split thickness skin graft to the tissue bed, which besides eliminating the dead space, also gave desired shape to the socket.^[3] Seitchik advocated the use of impression compound as a safe method for external splinting following a rhinoplasty or nasal fracture reduction.^[4] Impression compound is also used as a bite registration material for face-bow mounting to record the spatial orientation of jaws for performing mock surgery prior to orthognathic surgery. Pani and Hedge described a two stage technique utilizing greenstick compound and addition silicone impression material to provide a safe, economical, and accurate method for recording impressions in children with cleft lip and palate.^[5] Bhattacharya *et al.* have used this material to document the first web space angle in patients with adduction contracture thumb.^[6] The above examples illustrate the versatility of dental impression compound (popularly known as compo or stent's compound) in regard to its multiple uses in the field of plastic surgery, mandating the need to have a workable knowledge about this material.

Impression compound is a mucocompressive, thermoplastic (i.e., it softens when heated and hardens when cooled) and rigid impression material that was invented by British dentist Charles. T. Stent in 1856. Later, a Viennese surgeon, Johannes F. S. Esser (1877-1946) used it in plastic surgery as a matrix to form tissue in the process of rebuilding a shattered face and popularized it as Stent's mould or Stent's compound.^[7] It is made up of three constituents that include resins (e.g., wax), filler (e.g., talc or soapstone) and lubricants (stearic acid or stearin). Two types of impression



Figure 1: Different colours and forms of impression compound

compounds are available - Type 1 which is low fusing with a fusion temperature of approximately. Above 45°C and Type 2 which is high fusing with a fusion temperature of approximately above 70°C. It is manipulated in a temperature controlled water bath or air bath or open flame. When the compound is heated, the outside part always softens first and inside part softens last. Adequate time must be allowed for the material to be uniformly heated throughout its mass. Higher the temperature, greater is the flow. However if the temperature is quite high, leaching of plasticizers causes it to become grainy and sticky. Although reusable, it cannot be sterilized and tends to become unhygienic and should not be reused ideally. It is nontoxic and nonirritant to the tissues.

It is available in different colours such as brown, grey, green, red, black and white and is dispensed in many forms such as sheets, cakes, cones, sticks etc., [Figure 1]. It satisfies all the criteria for the ideal soft tissue substitute.^[3] However, it can be a potential cause of iatrogenic burn injury if used carelessly and if Bhandari and Singh^[1] would have known that the impression compound is also available in brown (skin shade), they would have definitely used the brown coloured cake instead of red cake, so as to provide better aesthetics in 6 months postoperative period.

**Himanshi Aggarwal, Pradeep Kumar,
Rohan Grover**

Department of Prosthodontics, Faculty of Dental Sciences,
King George's Medical University, Lucknow,
Uttar Pradesh, India

Address for correspondence:

Dr. Himanshi Aggarwal,
Room No. 404, E Block, Gautam Buddha Hostel,
King George's Medical University, Lucknow, Uttar Pradesh, India.
E-mail: drhimanshi84@gmail.com

REFERENCES

1. Bhandari PS, Singh S. Dental impression compound as an effective splint for maintenance of ear elevation in microtia reconstruction. *Indian J Plast Surg* 2013;46:518-20.
2. Thadani SM, Ladani PS. A new method for training of ear framework creation by silicon dental impression material. *Indian J Plast Surg* 2012;45:134-7.
3. Betharia SM, Kanthamani, Prakash H, Kumar S. Skin grafting in severely contracted socket with the use of 'Compo'. *Indian J Ophthalmol* 1990;38:88-91.
4. Seitchik MW. A "safe" nasal splint lined with dental impression compound. *Plast Reconstr Surg* 1986;77:164.
5. Pani SC, Hedge AM. Impressions in cleft lip and palate — A novel two stage technique. *J Clin Pediatr Dent* 2008;33:93-6.
6. Bhattacharya. S, Pandey. S.D, Chandra. R and Singh. G.K.: Documentation of First Web Space Angle — *Journal of Hand Surgery (British Volume)* (1989) 14B, 298-300. Cited in *Yearbook of Hand Surgery* 1990.
7. Roguin A. Stent: The man and word behind the coronary metal prosthesis. *Circ Cardiovasc Interv* 2011;4:206-9.

Access this article online	
<p>Quick Response Code:</p> 	<p>Website: www.ijps.org</p>
	<p>DOI: 10.4103/0970-0358.138989</p>