

'Down to Earth'

Manual Spot Dermabrasion With Sand Paper

- Experience from a Dermatological Center in Nigeria



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ABSTRACT

Dermabrasion can be utilized to remove blemishes scars and freckles from the skin. Standard methods and equipments used in developed countries are not available locally in Nigeria, for economic reasons. We have described our local experience on 12 patients using a method utilizing sand paper long described but not yet tried here. The technique which is readily available and affordable using sand paper rolled on syringes was tried at our dermatology center. The cosmetic results are quite encouraging.

INTRODUCTION

DERMABRASION is a form of skin resurfacing that involves sequential planning of the skin to the desired level. It is an effective procedure that alleviates many facial cutaneous disorders especially useful for facial scars and skin rejuvenation.¹

The main indication for dermabrasion is scarring resulting from surgical procedures, trauma, or acne. Other conditions relevant to our local practice include photo damage or wrinkled skin, fading tribal marks, freckles and lentigenes, stable vitiligo, melasma, actinic keratosis, adenoma sebaceum, syringoma among others.¹⁻³

Other modern techniques of skin resurfacing include chemabrasion, laser abrasion with Er. YAG or CO₂ laser, and microdermabrasion with modern aluminium oxide crystals. These techniques are either expensive or not readily available.^{2,3}

In conventional dermabrasion, an electrically powered hand held abrader with a diamond fraise or wire brush is the cutting tool. However, this technique has several drawbacks and requires both skills and experience. Extreme caution must be taken when the periorbital or peri oral areas are treated; blood particles may be aerosolized, blood and skin refrigerants before dermabrasion may cause hypo-pigmentation from injury to the melanocytes.^{2,4-5}

In Nigeria, conventional dermabrasion is expensive and only very few dermatologists can operate the

equipment effectively. Manual dermabrasion therefore will be more appropriate. This entails less expertise and will not cause the disadvantages above.

Meneksha reported on the use of dermabrasion with sand paper in 1906 and later introduced manual metallic dermabrader^{1,4-6}

Since the further introduction motorized dermabrader, the use manual dermabrasion has been declining but there is need to bring it back again in view of the obvious advantages as more indications continue to unfold¹⁻³

Various manual abraders are employed manually such as carbide, sanding screen, but these could be difficult and even appeared too rough, harsh and unfriendly as they may be metals though malleable.

Sand paper however is soft, gentle and just as it is described a paper, so it is more friendly to the skin - though rarely emphasized and also rarely explored and optimized.^{1,5-10}

This simple and highly effective technique of manual spot dermabrasion described below using sand paper has several advantages over the conventional technique.

MATERIAL AND METHOD

Twelve patients were studied. A visual analog scale - from 0 to 3 was utilized to assess the outcome. On the visual analog scale (VAS 0-3) response.

3 points referred to "Very satisfied/Mark improvement"
 2 points referred to "Moderate improvement"
 1 point referred to "Mild improvement"
 0 point meant "No improvement"

The material used for the procedure were

- (a) Dry and rough (coarse) sand papers (see Fig 1), cut into strips of about 2 x 3 inches autoclaved and steam sterilized;
- (b) A sterile (two mls) syringe with a local anesthetic agent lidocaine,
- (c) Sterilized gauze, antibiotic ointment, plaster (non allergic),
- (d) Barrier protection for surgeons and staff - gown,

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gloves, mask, face shield as necessary.^{1-2,5}

Patients with lentigenes, freckles, melasma, trauma, acne and patients with actinically damaged skin were selected for the study. We treated patients with light brown and dark brown complexions (Fig. 3 & 4)

The basic pre-operative care, cautions and caveats were observed as documented in the literature for all forms of dermabrasion.

THE TECHNIQUE/PROCEDURE

This is itemised below:

- Informed consent was obtained.
- Sedation - with diazepam 10mg, the previous night and in the morning before the procedure.
- Patient was laid in supine position.
- Anaesthesia used included topical anaesthesia (xylocaine jelly), as well as local anaesthesia (1% lignocaine with 1:1000 adrenaline) given as infiltration.

- A cap was worn for each patient to cover/protect the eyes and the ears plugged.
- Surgical cleaning of the area was done..
- Areas to be abraded were marked and outlined with marking ink or Gentian Violet lotion before giving anaesthesia.
- The skin was stretched with one hand with help of the assistant from the opposite side.
- The barrel of the syringe was wrapped firmly with the piece of the sand paper and grasped firmly..
- The procedure was started from the dependent area going upwards so that bleeding did not obscure the area for dermabrasion.
- The area was then gently abraded with a back and forth or circular motion until the area is smooth(or smothered with a fine sand paper) down to the papillary dermis where bleeding points can be appreciated (the few larger bleeding points are the end point/ arteries).
- Haemostasis was achieved with pressure applied for about 10 minutes.
- Standard dressing was applied with the use of topical antibiotics such as retapamulin (Altargo) and Bacitracin (mupirocin). and non sticky bandage non-adherent gauze coated with liquid paraffin were utilized.
- Pain killers were given if required.
- The patients were instructed to open the wound for dressing in 10 days

RESULTS

The usual time for epithelia healing was approximately 7-10 days.

Great improvement of the condition were noticed by the method.

Complications like mila, hypopigmentation and hyperpigmentation were watched out for.^{1,3,5,6-12} but they were minimal or nonexistent in the trials.

There was reasonable improvement on the 12 patients studied. On the visual analog scale (VAS 0-3) response from the patients revealed:

50 percents had 3 points (very satisfied/Mark improvement)
 25 percent had 2 point, (moderate improvement)
 25 percent had 1 point (mild improvement)
 0% had 0 point i.e no improvement (0 points) on the VAS.

DISCUSSION

Advantages

Manual spot dermabrasion with sand paper is easy to perform and greatly improves some facial cutaneous

dermatosis.¹⁻³ The advantages of this technique compared with the use of a motor powered and other forms of manual dermabrasion are as follows:

- Less expensive without the use of a powered instrument.
- No need for careful maintenance and cleaning of tips, fraises, brushes and wheels or metals
- No skin refrigerant is used and thus less chance of hypopigmentation.
- No chance of eyelids, vermilion, or gauze being caught in the power instrument.
- Better controlled depth of abrasion and thus less chance of scarring.
- Better patient comfort because there is no machine or use of skin refrigerant.
- No aerosolized particles that could infect physician

or staff.

- Easier preparation and clean up with the use of disposable materials.
- No blood spatter
- So soft and more friendly to the skin than all other manual abrader⁶⁻¹²
- Generally available at the next furniture or carpenter shop
- No need for reesterilization or fear of HIV/Hepatitis

CONCLUSION

Spot manual dermabrasion with sand paper is safe and effective and is a realizable procedure, it could be used in the dermabrasion room - especially in a developing country. Further studies with more patients and better outcome measures could be employed in the future to further study the procedure. ■

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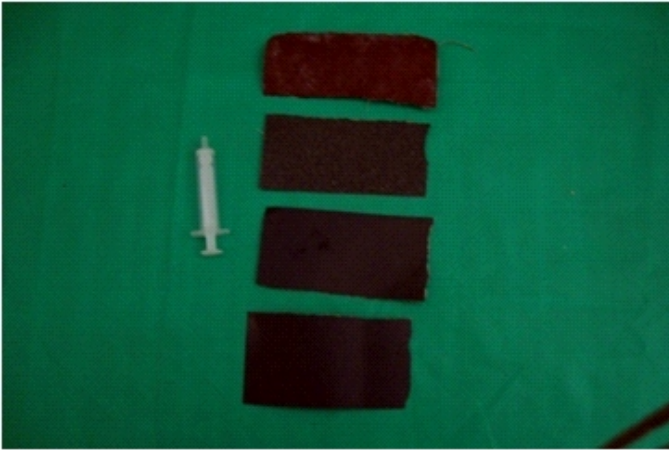


Fig 1. The set of sand papers used.



Fig 2 The holding technique

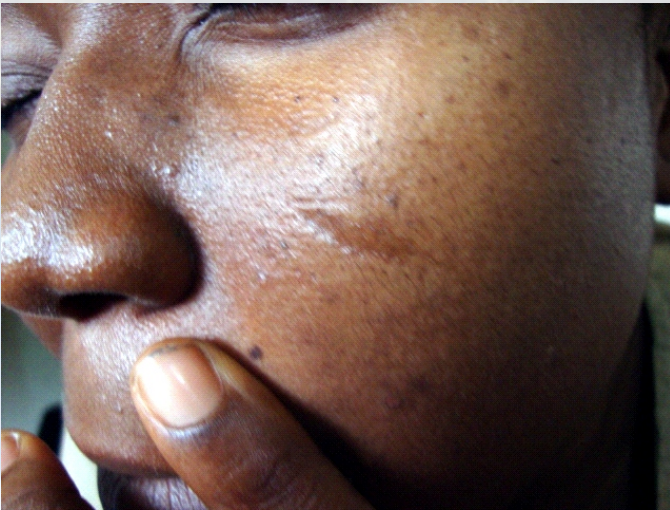


Fig 3a Pre-dermabrasion on Facial scar



Fig 3b Post dermabrasion of scar



Fig 4a Predermabrasion



Fig 4b Post dermabrasion