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Combining Scalp Micropigmentation (SMP) and Hair Transplantation

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Concealers have been used for decades by men and women to camouflage their balding and thinning scalps. Although previous use of cosmetic tattoos have been attempted by cosmetic service providers,[4] not until recently has this become an art form used by cosmetic surgeons.[1,2,14] SMP reflects the use of permanent concealers in the form of a specialized tattoo applied in a stippling pattern to mimic closely cut hairs. It has been applied to a wide variety of pathologies of the hair and scalp in hair restoration surgeons' offices and even in tattoo parlors. A special cosmetic tattoo instrument with a handpiece that utilizes reciprocating needles is used to apply the stippled pattern between the pores of the scalp. The dot size must be small, around 0.1mm as seen from the surface of the skin (Figure 1).

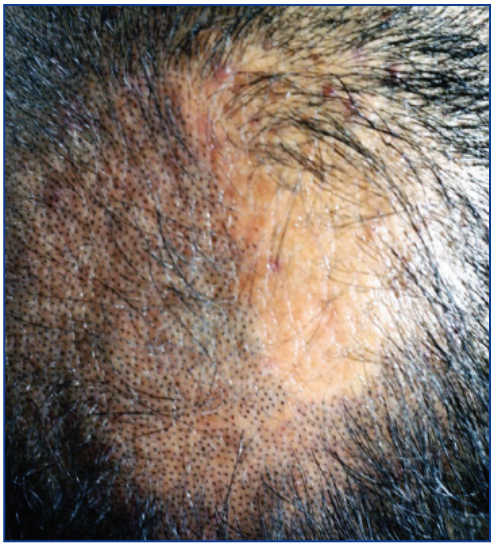

Figure 1. Close-up of dots

Equipment and Inks (Pigments)

The equipment is standard for cosmetic tattoo instruments, containing one or more needles. These machines vary in costs from US$1,000-$3,500. Needles cost approximately $10/use and are disposable. The handpieces are part of the machine costs. In our hands, we use only organic pigments that contain no heavy metals unlike many tattoo inks. When it comes to the color of the inks, we always tell our patients that we use 50 shades of gray, which is close to the truth as we dilute black ink to achieve many shades of gray. Hair that exits the scalp is usually gray so what we do is not so different than what Mother Nature does.

The limited donor supply of hair for the advanced balding pattern patient often creates a problem for the patient and the doctor. For example, for those with low donor density and a Class 4 or 5 pattern or greater, the ability to cover the balding area with hair transplantation alone is limited. This is particularly relevant for the Asian patient with generally 20% less available hair for transplantation. SMP, in combination with hair transplants, offers a solution not heretofore available. When fine dark hair and a light skin color appear in combination, as it does in many Asians, the low Asian donor density complicates surgical planning. SMP, therefore, allows the doctor to achieve the patient's desired results with less grafts.

SMP is uniquely suited to a variety of conditions for which there is no other alternative such as 1) the punctate scars from FUE, 2) those with see through donor areas when extractions are above the 4,000-5,000 level, and 3) in those patients with lower than normal donor densities. Previous hair transplant patients who have become heavily donor depleted, often with significantly scarred donor areas, are ideal candidates for SMP, and it offers the patient an ability to achieve a normal looking donor area without further hair transplantation as SMP addresses the scarring and see through donor areas directly.

The SMP process is paradoxically both easy and difficult. A cosmetic tattoo handpiece contains more than one needle that cycles between 120-150 cycles per second, penetrating the epidermis with each cycle. The inks (pigments) are passed into the wounds by surface tension between the needles. As such, the amount of ink delivered is non-quantitative and the multiple insertions delivering the ink through surface tension work as a two way street (upward and downward), delivering only a small amount of ink past the epidermis into the dermis. As the depth of the delivery is hand controlled, depth control can become a real problem. Too deep delivers an amalgam of ink that appears blotchy, too superficial, the ink does not get into the dermis and leaks out as each needle withdraws. If held too long in the dermis, too much ink gets delivered, and if not passed beyond the basement layer of the epidermis, an inadequate amount of ink is delivered. To compound the problem of ink delivery, the cycling needles produce a

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