



Case Reports

MANAGEMENT OF PORTWINE STAIN BY THE HELP OF TISSUE EXPANDER

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Summary:

A 21 years of young unmarried girl presented to us with Port-Wine Stain (PWS) on right side of face. A 250 ml size skin expander was placed under the healthy skin of right side of her face. Skin expansion was started by infiltrating normal saline into the expander for 2 weeks. After 2 months of skin expansion it seemed to be adequate. The port-wine stained area was excised and covered subsequently with expanded skin. Post-operative recovery was uneventful and patient looked normal.

Introduction:

A port wine stain is a flat and sharply demarcated mark on the skin which grows proportionately with the child. The color ranges from pale pink to deep red and the hue deepens when the child cries, febrile or is in a warm environment. The pink flush, characteristic of infancy, gradually darkens to a deep red shade during adulthood, to a purple color during middle age. With aging it becomes hypertrophic and cobblestone like in texture which looks ugly. The surface of the port-wine stain often becomes studded with nodular lesions. In addition, soft tissue and skeletal hypertrophy may become more obvious in these patients. These are birth marks, often incorrectly categorized as 'Capillary Hemangioma' but these are low flow vascular malformations (Capillary Type)¹. The incidence varies from 0.3%^{2,3} to 0.5%⁴ and the cause is unknown³.

Port-wine stains usually located on the neck, face, and scalp area but may present in other parts of the body also. It may cause various problems^{3,4} like -

- Cosmetic Problems - disfigurement⁵
- Swelling of the PWS with age.
- Formation of small blood filled bumps within the PWS.
- Rapidly growing benign blood tumors called pyogenic granulomas which bleed easily and appear as a raised region of "proud flesh" on the surface of a PWS.
- Swelling of a limb, lip, eyelid or some other part of the body affected by the PWS.
- Changes in blood circulation in or around the stain.
- Bleeding from minor trauma.
- Rare Infection.
- Acne within the PWS, including pimples, blackheads and cysts.
- Ingrown hairs.
- Thickening of the stain.
- Darkening (purple discoloration) with age which may lead to cobblestone like texture.
- Abnormal growth of an affected limb or other body part.
- Varicose veins associated with a PWS on an arm or leg.
- Itching and discomfort on affected side.
- Eye problems: glaucoma or other eye problems.
- Brain abnormalities: The Sturge-Weber syndrome, Epilepsy etc.

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There are various modes of management of port-wine stains as none of them are proven fully effective. They include -

- Tissue expander and Surgery⁶: For larger lesions, use of tissue expander before surgical excision to cover the raw area with normal skin.
- Surgery: For small lesions surgical excision and primary closer is quite effective and cosmetically acceptable⁷.
- Surgical excision and skin grafting.
- Surgical excision and micro vascular grafting.
- Laser treatment⁷ :
 - * The flashlamp pumped pulsed dye laser^{8,9,10}
 - * The copper vapour laser (CVL)¹¹
 - * The frequency doubled Nd:YAG laser (FDNYL)¹¹
 - * Argon lasers¹²
- Skin camouflage⁷: It's temporary measure which hides the disease by -
 - * Cosmetics
 - * Tattooing¹³
- Freezing⁷
- Radiation therapy^{7,14}

Though skin expander is costly but the use of skin expander before excision of moderate or large port-wine stained area permits linear closure along the facial unit borders, which gives good result.

Case Report:

A 21 years of young unmarried girl presents with port-wine stain on right side of face. The problems of the girl were cosmetic. But she also had mental agony due to the unwanted stain in her face. The lady had no signs of epilepsy or any other problems like pain, itching, discharge etc. Her hematological and biochemical parameters were also within normal range (Fig -1).



Fig-1: Portwine stain in face(before operation)

A 250 ml size Kidney shaped tissue expander was placed under healthy skin of right side of face under general anesthesia (Fig-2). After 2 weeks, skin expansion starts by infiltrating 20 ml of normal



Fig-2: Tissue expander

saline on expander weekly. Within 2 months of skin expansion it seems to be adequate and further skin expansion was stopped. But the operation was delayed for further two weeks for stabilization of the tissues. (Fig-3).

Then the skin containing the port-wine was excised surgically and the area was covered with expanded skin under general anesthesia. Post-operative recovery was uneventful and patient looks normal in the follow up (Fig-4).



Fig-3: Expanded skin over the tissue expander



Fig-4: After operation

Discussion:

Port-wine stain is one of the common vascular malformations. With aging it becomes hypertrophic and cobblestone like in texture which looks ugly. Depending on the location and size, port-wine stains can be disfiguring⁵ and may lead to psychosocial complications. Thicker application of make-up no longer camouflages the patch of pebbled skin.

Treatment of port-wine stain with LASER may not clear the port wine stain completely what ever the type of laser it may be. Laser treatment is ineffective in older children and adults.⁸⁻¹² On the other hand, it is costly and needs multiple sittings. Tattooing is not a procedure of treatment at all. Besides this it has its own hazards like infections, discoloration, etc⁷. Radiation is hazardous, it discolors skin and result is doubtful⁷.

Surgery is curative for smaller lesions but for large lesions surgical excision and primary closure is not possible. In that case we can cover the raw area by split thickness skin grafting or micro-vascular graft of normal skin. Skin grafting is not cosmetically accepted. Micro-vascular is graft is more or less cosmetically good but it needs technical sophistications and there is chance of graft failure also. In such situation excision of port-wine area and covering of raw area with skin gives best result both cosmetic and functional. We can do it by application of skin expansion of healthy skin by the help of tissue expander before excision of port-wine area⁶. There is report of infection on tissue expander application site¹⁵. But we face no such complication. The result of our tissue expansion is satisfactory like others^{5,15,16}.

Conclusion:

In case of larger Port-wine stain, skin expansion with the help of tissue expander before excision permits linear closure along the facial unit borders gives good cosmetic result as it preserves the normal skin color and contour.

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