

TREATMENT OF PIGMENTATION OF THE LIPS AND ORAL MUCOSA IN PEUTZ-JEGHERS' SYNDROME USING RUBY AND ARGON LASERS

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INTRODUCTION

Peutz-Jeghers' (P-J) Syndrome is a hereditary disease with peculiar pigmented spots on the skin and mucous membranes associated with alimentary polyposis. It was first reported by Peutz (1921) and later by Jeghers *et al.* (1949).

Pigmentation on the lips and oral mucosa in these patients is usually regarded as untreatable. Dermabrasion has occasionally been attempted (Yokoseki, 1957), but the results have been very disappointing. This paper presents our more encouraging experience with the use of argon and ruby lasers in the treatment of the dark brown pigmented spots on the lips in 3 children with the Peutz-Jeghers' syndrome.

CASE REPORTS

Our three patients were school children between 7 and 12 years of age. They said that in school they were called "cannibals" or "sesame seed lips" and such teasing made them unwilling to go to school.

In our three cases, the dark brown pigmented spots were found on the lips, oral mucosa and the palmar and plantar aspect of the fingers and toes, which are the common sites, and also on the nose, cheeks, conjunctivae, elbow and knee, but not in the peri-anal area.

The age of onset of the disease ranged from 1 to 1½ years.

Case 1. A 7-year-old girl had a resection of gastric polyps and segmental resection of the transverse colon for Peutz-Jeghers' syndrome. It was thought to be of the hereditary type, because her father had the same disease.

The pigmented spots on the lips were treated with a ruby laser of 6 to 10 Joules/cm² with a satisfactory result maintained over a follow-up of 3 years.

Case 2. A 9-year-old girl presented with pigmented spots over the lips and buccal mucosa. These were treated with a ruby laser of 10 Joules/cm².

We were able to restore normal texture and colour without scarring on the lip vermilion and oral mucosa. She has been followed for 2 months and the excellent result has been maintained.

Case 3. A 12-year-old boy presented with pigmented spots on the lips, especially the vermilion border of the lower lip. The lesions on the vermilion border were treated with a ruby laser of 15 Joules/cm² and the spots at the angle of the mouth

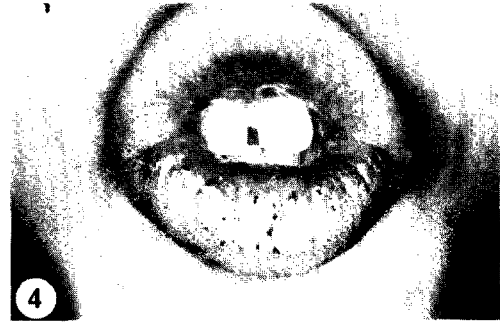


FIG. 1. Preoperative view to show pigmented spots over the lips and vermilion border (Case 1).

FIG. 2. Result after treatment with ruby laser.

FIG. 3. Preoperative view to show pigmented spots over the lips and lower lip vermilion border (Case 3).

FIG. 4. Postoperative view: ruby laser used in the central area; argon laser at each angle of the mouth.

FIG. 5. Final result.

were treated with an argon laser of 13 Joules/cm^2 . Two weeks later, all the spots had disappeared. Normal lip texture and colour had returned which could not be distinguished from the surrounding area of the lips. No evidence of recurrence was noted on follow-up 4 months later.

DISCUSSION

The management of the intestinal polyposis associated with the P J syndrome has been well documented in the literature, but the treatment of the pigmented spots on the lips and oral mucosa has received scanty attention apart from reports of dermabrasion. Unfortunately this treatment later produces unacceptable scarring in the adjacent normal tissues.

1. Ruby laser treatment. The effectiveness of ruby laser treatment is due to the fact that its beams have the characteristics of high-absorption to the dark colour and low-absorption to the light colour.

The dark brown pigmented spots in P-J patients, are darker than in normal lips or mucosa, thus the laser beams are able to remove the brown spots selectively. Ruby laser beams give the effect of radiant heat directly to the melanocytes in the area of pigmented spots, without affecting the surrounding cells (Ohshiro, 1977: 1980 in press). This "selective action" might be regarded as the special advantage of the ruby laser.

2. **Argon laser treatment.** The Argon laser has a long irradiating time and a "selective action" similar to the ruby laser is, therefore, impossible.

As this system has a flexible fibre and the irradiated area is small (maximum 0.03 cm^2), it is possible to destroy completely the small pigmented spots.

Since 1975, we have treated over 3,000 coloured naevi with both ruby and argon lasers with favourable results.

The differences between the characteristics of the apparatus and the reaction to the skin when using ruby and argon lasers are indicated in Table I.

TABLE I
Differences between Ruby and Argon Lasers

Nature	Ruby laser	Argon laser
	Solid (pulsed beam)	Gas (continuous beam)
Diameter of irradiated area (mm)	5.32	1.2
Maximum treatment area by single shot (cm^2)	8	0.03
Output power	0-160 Joules	0.3 Watts
Wave length (nm)	694.3	514.5, 488.0
Irradiation time (sec)	0.001	0.05-continuous
Repetition rate (min^{-1})	2	60-600
Radiation heat effect	large	small
Conducting heat effect	small	large
Homogeneity of colour tone	good	insufficient
Delicate treatment	inadequate	adequate
Treatment for irregular configuration	inadequate	adequate
Anaesthesia (local or general)	rarely	occasionally
Selective treatability	large	small
Handling	complicated	easy

SUMMARY

Three patients with punctate pigmented spots on the lips and oral mucosa, accompanying the P-J Syndrome, were successfully treated with ruby and argon lasers.

The basic principles of laser treatment, the characteristics of the different laser systems and the skin reaction to ruby and argon lasers are discussed.

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