IgM Chlamydia Trachomatis Antibodies in Cases of Melasma

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Abstract

Background : Melasma is an acquired photosensitive hypermelanosis in sun-exposed areas, especially seen in females. The exact cause of this disorder is not known. Association of melasma with chronic pelvic inflammatory disease (PID) has been described earlier. *Chlamydia trachomatis* is an important etiological agent in acute and chronic PID and photosensitivity has been described in almost 50% cases of chronic lymphogranuloma venereum caused by 1.1, 1.2 and 13 serovars of *C. trachomatis*.

Method : Blood of 38 cases of melasma in women and 31 healthy females was tested for the presence of *C. trachomatis* IgM antibodies by ELISA.

Results : The average age of the patients was 35.6(range 19-51) years and that of controls was 38(range 24-55). 7(18.42%) and 5 (13.16%) of the patients of melasma were positive and borderline positive for IgM antibodies respectively. None of the healthy controls were positive. The difference was statistically significant.

Conclusion : Melasma in women is most likely due to photosensitivity to *C.trachomatis* in cases of chronic pelvic inflammatory disease.

MJAFI 2005; 61 : 351-352

Key words : Melasma; Chlamydia trachomatis infection

Introduction

Melasma is an acquired hypermelanosis, which occurs in sun-exposed areas and is exacerbated by light. Women are usually affected, but it may occasionally be seen in men. The exact cause of this disorder is not known. Melasma has been commonly associated with pregnancy [1] or consumption of oral contraceptives [2]. The infrequency of melasma in postmenopausal women on estrogen replacement therapy suggests that it alone is not the only causative factor [3]. Although familial cases have been described, it should not be considered a heritable disorder [3]. Andreev and Petkov [4] noted a melasma type of hyperpigmentation on face in five patients of brain tumor. In three it resolved after surgical removal of the tumor. Some of the patients have been found to have mild ovarian dysfunction [5]. However, levels of ²-melanocytic-stimulating-hormone have been found to be normal in idiopathic cases and those on oral contraceptive drugs [5,6]. Certain other factors like hepatic dysfunction, nutritional deficiencies and medications have been implicated [3,7]. Pathak et al [8] suggest that genetic influence and exposure to UV radiation are important. In another study carried out in Leh (Ladakh) at an altitude of 3455 meters, (where the level of UVB is 250 percent of that at sea level at noon) 68.48% of

females and 60.80% of males had melasma [9]. This study highlighted that melasma is a photosensitive disorder or a protective phenomenon of the body against high doses of ultra violet light. It also highlighted that females are slightly more commonly affected even under those conditions of high altitude. In another study conducted in plains many of the females with melasma were suffering from chronic pelvic inflammatory disease (PID) [10]. Since *Chlamydia trachomatis* is established as an important etiological agent in acute and chronic PID [11] and photosensitivity has been described in almost 50% of chronic cases of lymphogranuloma venereum caused by L1, L2 and L3 serovars of *C.trachomatis* [12], this study was designed to find out the possible role of *C.trachomatis* in the causation of melasma in women.

Material and Methods

The study was carried out on 38 female cases of melasma and 31 healthy women without melasma. Blood was tested for IgM Chlamydia trachomatis antibodies by Microwell ELISA method by kits supplied by Diagnostic Automation Inc. California 91302 USA.

Results

The average age of patients was 35.6 (range 19-51) years and that of controls was 38 (range 24-55) years. Average

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Table 1**Chlamydia trachomatis antibodies in cases of melasma**

Group	No.	IgM Chlamydia trachomatis antibodies		
		Positive (%)	Borderline positive (%)	Total (%)
Melasma	38	7* (18.42)	5 (13.16)	12 (31.58)
Controls	31	0	0	0

*Including one with Reiter's disease

duration of melasma was 26.02 months.

Presence of IgM *C.trachomatis* antibodies in these cases is shown in Table 1. One of them also had Reiter's disease with positive IgM *C.trachomatis* antibodies.

None of the controls had detectable antibodies to *C.trachomatis*. Thus cases of melasma had significantly higher incidence of IgM *C.trachomatis* antibodies as compared to healthy controls.

Discussion

Serological tests for chlamydia are not useful for superficial infections. Four-fold rise in antibody titre between acute and convalescent sera may be useful in the diagnosis of invasive and systemic infections like infantile pneumonia, PID and LGV. IgM antibodies are indicative of acute or persistent chlamydial infection. IgG antibodies on the other hand may be short-lived. High titers of IgM antibodies to *C.trachomatis* have been demonstrated in only 44% of cases of perihepatitis with findings of PID (Fitz-Hugh-Curtis syndrome) by one author [13]. ELISA test of patients suspected to have *C.trachomatis* infection has recently been used as a diagnostic tool [14-19]. Hence we used this test to demonstrate IgM antibodies in cases of melasma. 31.58% of our cases of melasma were positive (18.42% strongly positive and 13.16% borderline positive) for IgM antibodies. Since association of melasma with chronic PID has already been described [10], presence of these antibodies in a significant proportion of cases suggests *C.trachomatis* as a possible etiological agent of melasma. Presence of Reiter's disease in one of the cases, which also tested positive for *C. trachomatis* IgM antibodies further supports *C.trachomatis* as its etiological agent. Since photosensitivity has been described in almost 50% of chronic cases of lymphogranuloma venereum caused by L1, L2 and L3 serovars of *C.trachomatis* [12], this suggests that melasma in females is possibly due to photosensitivity to *C.trachomatis* in clinical or sub clinical chronic pelvic infection.

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