Chronic Cutaneous Disorders in Down syndrome Patients

Al Mosawi AJ^{1,2*}

¹Advisor in Pediatrics and Pediatric Psychiatry, Children Teaching Hospital of Baghdad Medical City, Iraq

²Head, Iraq Headquarter of Copernicus Scientists International Panel, Baghdad, Iraq

Corresponding Author: **Aamir Jalal Al Mosawi**

Address: Department of Pediatrics, Children Teaching Hospital, Baghdad Medical City, Baghdad, Iraq; Tel: +964-7703930834; E-mail: almosawiaj@yahoo.com

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Abstract

Background: Down syndrome is an extensively studied chromosomal disorder characterized by mental retardation and distinct physical manifestations, and it is the second most common cause of mental retardation in Iraqi children after idiopathic mental retardation. However, the chronic cutaneous conditions associated with the syndrome have received relatively inadequate attention. This paper aims to determine chronic cutaneous disorders persisting more than six months or reoccurring over six months in Down syndrome patients.

Patients and Methods: Twenty-seven patients (17 males and 10 females) with Down syndrome were observed at the Children Teaching Hospital of Baghdad medical City and the Medical Consultation Clinic of Iraq headquarter of Copernicus Scientists international panel in Baghdad during 2018 and 2019. Their ages when they were first seen ranged from 4 months to 30 years.

Results: Chronic cutaneous disorders were observed in four patients of the twenty-seven patients observed. Three patients including a thirteen-year-old girl and two boys had alopecia areata, and a man aged thirty years had familial baldness and Tinea corporis of the dorsum of the right hand.

Conclusion: This paper highlights the association between Down syndrome and Tinea corporis which has not been noticeably emphasized in the medical literature.

Keywords

Cutaneous Disorders, Down Syndrome, Alopecia Areata, Tinea Corporis

Introduction

Down syndrome (Trisomy 21) was first described by Jean-Etienne-Dominique Esquirol in 1838 (**Fig-1**), and later by Edouard Séguin (**Fig-2**) in 1846. However, the disorder was named after John Langdon Down (**Fig-3**), a British physician who emphasized that the syndrome is a distinct form of mental retardation in 1862. Down syndrome was recognized as a chromosome 21 trisomy by Dr. Jérôme Lejeune

(**Fig-4**) in 1959, and the condition became known as trisomy 21 [1].

Down syndrome is an extensively studied chromosomal disorder characterized by mental retardation and distinct physical manifestations, and it is the second most common cause of mental retardation in Iraqi children. However, the chronic cutaneous conditions associated with the syndrome

have received relatively inadequate attention [2,3]. This paper aims to determine chronic cutaneous disorders persisting more than six months or reoccurring over six months in Down syndrome patients.

Fig-1: Jean-Étienne Dominique Esquirol (February, 3, 1772- December, 12, 1840), a French psychiatrist

Fig-2: Édouard Séguin (January, 20, 1812-October, 28, 1880), a physician and educationist born in Clamecy, Nièvre, France. He was best known for his work with children with cognitive impairments in France and the United States

Fig-3: John Langdon Haydon Down (18 November, 18, 1828- October, 7, 1896), was a British physician most famous for describing Down syndrome

Fig-4: Jérôme Jean Louis Marie Lejeune (June,13, 1926- April,3, 1994), a French pediatrician and geneticist, best known for discovering the link of diseases to chromosome abnormalities and for his subsequent opposition to prenatal diagnosis and abortion

Patients and Methods

Twenty-seven patients (17 males and 10 females) with Down syndrome were observed at the Children Teaching Hospital of Baghdad medical City and the Medical Consultation Clinic of Iraq headquarter of Copernicus Scientists international panel in Baghdad during 2018 and 2019. Their ages when they were first seen ranged from 4 months to 30 years. Thirteen patients were seen during infancy and toddlerhood (Fig-5A). Four patients were first seen during early childhood before the age of five years (Fig-5B).

Fig-5C shows six of the ten patients who were seen for the first time after the age of five. Two patients had atrial septal defect including a female infant and a boy who had secondary tricuspid regurgitation. One female infant had and evidence of hepatic hemangioma on ultrasound. One infant developed transient minor skin rash during infancy and two patients had prominent synophrys including a female infant and a boy. One four-year-old boy had undescended testes.

Fig-5A: Twelve of the thirteen patients who were first observed during infancy and toddlerhood

Fig-5B: Four patients were first seen during early childhood before the age of five years

Fig-5C: Six of the ten patients who were seen for the first time after the age of five

Results

Chronic cutaneous disorders were observed in four patients of the twenty-seven patients observed. Three patients including a thirteen-year-old girl (Fig-6A)

and two boys had alopecia areata (Fig-6B) and a man aged thirty years (Fig-7) had familial baldness and Tinea corporis of the dorsum of the right hand.

Fig-6A: A thirteen-year old girl with Down syndrome and alopecia areata

Fig-6B: A boy with Down syndrome and severe alopecia areata

Fig-6B: A boy with Down syndrome and mild alopecia areata

Fig-7: A man aged thirty years with Down syndrome had familial baldness and Tinea corporis of the dorsum of the right hand

Discussion

The association of alopecia areata which is an autoimmune disorder with Down syndrome has been suggested during the 1960s [4] and confirmed during the 1970s and 1980s [5-10].

Du and Munro (1974) studied 1000 cases (560 males and 440 females) of Down syndrome aged from 5 to 67 years with an average age in males of 30 years and females 33 years. Alopecia areata was found in 60 (37 males and 23 females) cases. Du and Munro also reported that only one case of alopecia areata was found amongst 1000 subnormal controls [5]. Carter and Jegasothy (1976) reported that 19 cases of alopecia areata and four cases of vitiligo were found in 214 institutionalized patients with Down syndrome [6]. Colomb, Vittori, and Zonca reported four Down syndrome patients who developed alopecia areata [7]. Dautre et al (1978) reported two Down syndrome patients who had alopecia areata. One patient also had Hashimoto's thyroiditis and the second patient had vitiligo [9]. McCulloch, Ince, and Kendall-Taylor (1982) reported a 29-year-old man with Down syndrome who developed alopecia areata and autoimmune chronic active hepatitis [10]. Hatamochi and Ueki (1984) reported the successful treatment of alopecia areata with dinitrochlorobenzene in a patient with Down syndrome [11]. Scotson (1989) reported a patient with Down syndrome and alopecia who also had mild hypothyroidism [12].

Storm (2000) from Germany reported a 9-year-old girl with Down syndrome, and alopecia areata and developed celiac disease [13]. Dourmishev et al (2000) emphasized the association of Down syndrome with various cutaneous manifestations including atopic dermatitis, alopecia areata, elastosis perforans serpiginosa, syringomas, and skin infections. Dourmishev et al reported an 8-year male patient with Down syndrome who developed alopecia areata [14]. However, a study of alopecia areata in Singapore suggested that the association with Down syndrome [15].

Schepis, Siragusa, and Happle (2017) reported the occurrence of psoriasis and alopecia areata in a Down syndrome patient [16].

Tinea corporis is also called ringworm, is a skin infection that may occur on any part of the body and typically causes a red, itchy, scaly, circular lesion. The condition is caused by various species of dermatophytes including *Trichophyton* and *Microsporum* [17]. Tinea corporis which was seen in one patient in this study has not been noticeably highlighted in the previous literature.

Conclusion

This paper highlights the association between Down syndrome and Tinea corporis which has not been noticeably emphasized in the medical literature.

Acknowledgment

The sketches in figures-1 to 4 were published previously in a book (Reference-1), but the author has their copyright.

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