INTRODUCTION

Immunization is one of the most cost-effective public health interventions and is largely responsible for the reduction of under-5 mortality rate.1,2 Vaccine preventable diseases have declined markedly worldwide since the introduction of the routine immunization program in 1978, which was later upgraded in 1985 as the Universal Immunization Program (UIP).3 Various local and systemic side effects have been reported with routine immunization. Cutaneous side effects include local reactions like erythema, induration with or without tenderness, subcutaneous nodules, and hypertrichosis at the site of injection.4,5 Rarely erythema multiforme has also been reported.5,6 We hereby report a rare case of focal hypertrichosis in an infant following routine immunization with the pentavalent vaccine.

CASE REPORT

A 4-month-old healthy male infant presented with focal areas of increased hair growth over bilateral thighs. The child was born out of a nonconsanguineous marriage, full-term normal vaginal delivery. He received Bacillus Calmette–Guérin (BCG) vaccination at birth and combination vaccine at 6 weeks and 10 weeks of age which included diphtheria, pertussis and tetanus toxoid, hepatitis B, and hemophilus influenza type B (DTPw-HepB-Hib). Mother gave a history of localized swelling at the site of injection which was later followed by increased hair growth at the injection site bilaterally after about 2 weeks of injection. There was no history of local trauma, topical applications, or any other oral or injectable drug administered to the child. On examination, there were focal areas of hypertrichosis (pigmented hair) about 3 cm × 2 cm localized over a bilateral anterolateral aspect of thighs [Figures 1 and 2]. Underlying skin did not show any abnormality. Rest of the mucocutaneous examination was normal. Systemic examination was within normal limits.

DISCUSSION

Hypertrichosis is characterized by excessive hair growth that is abnormal for the age, sex, or race of an individual, or for a particular area of the body. It can be congenital...
or acquired, generalized, or localized.\[^4\] Acquired localized hypertrichosis (ALH) has been described as a separate entity with various underlying factors. It has been commonly reported in orthopedics following application of plaster cast and splint.\[^5,6\]

ALH is known to arise following chronic irritation, inflammation, and friction. It has been reported to result from tattoos, sclerotherapy, and subsiding psoriasis, respectively.\[^7-9\] It can present in an irregular pattern on the legs in chronic venous insufficiency, around the edges of a burn, at the site of insect bites, and after radical inguinal lymphadenectomy.\[^10-12\] Contact eczema, pretibial myxedema, arthritis, occupational, or self-inflicted trauma have also been associated with this phenomenon.\[^13\]

Rarely, ALH has been observed after vaccination including measles and BCG vaccination.\[^13,14\] The exact mechanism underlying this phenomenon is unknown, but it has been suggested that prolonged exposure to antigen results in the production of various cytokines by the immune system. These cytokines can also affect nonimmune system cells such as those in the hair follicles and promote localized hair growth.\[^15\]

Pentavalent vaccine given for routine immunization in children contains adjuvant like aluminium salts (aluminium hydroxide and aluminium phosphate). Persistent tender or itchy subcutaneous nodules and granulomas have been previously reported with these agents.\[^15,16\]

The classic histopathological appearance of these injection site reactions consists of a nodular inflammatory infiltrate with lymphoid follicles within the deep dermis and subcutaneous tissue with large collections of macrophages and eosinophilic infiltrate. Scattered giant cells and areas of eosinophilic necrosis have also been described. Finely granular refractile material can be found within macrophages, and the diagnosis can be confirmed by electron probe microanalysis.\[^15\]

The development of focal hypertrichosis following pentavalent vaccine has not been described previously in Indian literature. Though it is a benign side effect, the authors here want to throw some light on this rare and less known side effect of pentavalent vaccine, which is routinely given to infants as per the UIP.

Further research might help in revealing the exact mechanism for localized hypertrichosis at the injection site following pentavalent vaccine.

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**Conflicts of interest**

There are no conflicts of interest.

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