Case Report

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A harmful traditional practice in newborns with adrenocorticotropic hormone resistance syndrome: branding

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Abstract

Branding refers to a traditional practice of creating 'therapeutic' burns with hot iron rods over the skin in order to treat various diseases. Although branding is a harmful practice for the body, it has been used for various illnesses including physiologic jaundice in newborns, pneumonia, and convulsions. It causes serious morbidity and delays seeking proper medical care in neonates. Innovations of modern medicine and the use of evidence-based medicine should be preferred instead of these traditional practices. We present a branded mature newborn baby who was diagnosed as having adrenocorticotropic hormone resistance syndrome. This problem is very rare in Turkey; however, it is a very important health issue and has social aspects. Therefore, this case is presented to increase awareness. (Turk Pediatri Ars 2016; 51: 224-7)

Keywords: Adrenocorticotropic hormone, branding, newborn

Introduction

Branding refers to a traditional practice of creating 'therapeutic' burns with hot iron rods over the skin in order to treat various diseases. In some countries, these types of traditional therapeutic methods are used occasionally. Branding, which is a traditional and harmful practice, may also be used for pneumonia, jaundice, and convulsions. This practice may lead to injury, need for hospitalization, and even mortality. A law has been enacted by the Indian government for this issue and it has been criminalized because this practice is common in rural areas of India (1).

Although modern therapeutic methods have been developed in our country and the world, traditional methods are still being encountered in areas with low socio-economic levels. Some of them may be harmful for humans. In this article, we present a newborn baby boy with adrenocorticotropic hormone (ACTH) resistance syndrome who underwent branding because he became abstracted and had poor feeding.

Case

A boy was born from the second pregnancy of a healthy mother at term as the first live birth with a weight of 3040 g (25-50th percentile), with a height of 50 cm (50th percentile), and head circumference of 35 cm (50th percentile). Four days after birth, increased ammonia level and metabolic alkalosis were identified in Niğde Public Hospital where he was admitted because of poor feeding. He was referred to Erciyes University School of Medicine, Division of Neonatology. It was learned that no problem was found in the prenatal follow-up of the mother, the family was living in the rural area of Niğde and had a low sociocultural level. On physical examination, no other findings were detected except for extensive skin hyperpigmentation and second degree burn scars (1x1.5 cm) below the patella bilaterally (Figure 1a, b). When the family was asked about the burns, it was learned that this practice was applied especially in patients with somnolence in their region; they used an iron rod as they had learned from their parents, they heated the rod in a fire and then touched the areas below the patellae during periods of somnolence and cyanosis.

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The blood glucose level was found as 19 mg/dL at presentation. Intravenous access was established and 10% dextrose at a dose of 2 cc/kg was given as an intravenous bolus and glucose infusion was started (6 mg/kg/min). Renal and hepatic functions and electrolytes were found within normal limits. In addition, the metabolic acidosis and increased ammonia level (31.9 µmol/L) were observed to have disappeared, which were the reasons for referral. When it was found that the cortisol level was low [1.54 µU/L (normal >15 µU/L)] and ACTH level was considerably high [2421 pg/mL (normal: 0-46 pg/mL)] in the blood sample obtained at the time of hypoglycemia, a diagnosis of ACTH resistance syndrome was made.

Methylprednisolone treatment (20 mg/m^2), which was equivalent to 100 mg/m^2/day hydrocortisone was calculated and ¼ of the dose was given immediately as an intravenous bolus. The remaining ¾ was initiated as a 24-hour infusion. Close blood glucose monitoring was pursued and the dose of steroid was reduced in one week. Oral hydrocortisone (15-20 mg/m^2/day, 3 days) was initiated in place of the intravenous methylprednisolone.

Aldosterone, plasma renin activity, 17-OH progesterone, dehydroepiandrosterone sulphate, androstenedione, total testosterone, lactate, pyruvate, urine organic acid analysis, and TANDEM tests were found as normal. The adrenal gland dimensions were observed as normal on ultrasonography.

Osophagogastroduodenal (EGD) graphy was taken for achalasia, alacrima, adrenal failure (AAA) syndrome and ranitidine treatment was initiated because moderate reflux was found.

Information about the disease and follow-up was given by a pediatric endocrinologist and neonatologist for patient education. It was explained to the family that the traditional therapeutic method practiced was not an appropriate behavior and the risks it may create for the health of the patient were explained. The patient, who was hospitalized and treated for 19 days, was discharged with maintenance hydrocortisone treatment and was to return for outpatient

Figure 2. Reduction in hyperpigmentation and complete recovery in the scar related with branding on the 18th day of treatment

Figure 1a, b. Second degree burn scars caused by branding below the patellae and extensive pigmentation in the skin

follow-up visits, because he had no blood glucose problem and the family's awareness education was completed. Before discharge, it was observed that the patient's color started to fade and the burn scars disappeared (Figure 2). The personal information related with the baby and family has not been shared in the article and verbal consent was obtained from the family.

Discussion

From the times when drug factories were absent and modern medicine was not yet developed, "traditional medicine" practices, which are defined as medical practices related with the beliefs, traditions and other systems of communities, have frequently been used. These practices are used frequently around the world and in Turkey, and they may be used as therapeutic methods or in combination with traditional medical treatment (2). These practices, which have inadequate scientific evidence, also carry negative risks in terms of health. The code published in the official gazette specified the standards of acupuncture, apitherapy, phytotherapy, hypnosis, application of leeches, homeopathy, chiropractic, cupping, application of larvae, mesotherapy, prolotherapy, osteopathy, ozone therapy, reflexology, and music therapy (3). Different traditional practices are also used in our community in addition to these practices. Examples include treatment with "ırvasalama" (movements outside the body of the patient based mostly on psychological effect), "parpılama" (hitting, cutting, perforating or branding with the objective of treatment), em (herbal, animal, mineral, human or mixed household remedy), bonesetting therapy, headache therapy, spleen therapy, jaundice therapy, and praying, writing amulets and visiting entombed saints with the aim of treatment (2).

In the scope of Turkish culture, documents related with the tradition of branding go back to the mid fifth century B.C. The Scythians believed that branding the right breast of adolescent girls and the shoulders, elbows, wrists, hips, knees, and ankles would strengthen the body and enable better mobility. Branding directed to treat morbidities has been used for a long time. Examples include branding for headache, tooth ache, swellings in different parts of the body, verrucas, pimples and wounds, and branding with hot needles just below the umbilicus in infants who cry excessively and do not sleep (4).

Currently, the World Health Organization defines child abuse as follows: "All behaviors practiced on purpose or inadvertently by an adult, community or government resulting in harm for the child's health and physical and psychosocial development" (5). Based on this definition, branding may also be considered as child abuse. As in our patient, physical abuse is any intentional act that causes physical injury. Here, the objective was to harm the child. However, the actual objective in branding was to treat the child, though it is an inaccurate practice. Therefore, it is not exactly equivalent to child abuse. In addition, there are also problems arising from cultural differences between populations. Although hitting the child's perineum with a stick with the aim of training constitutes a crime in the United States of America (USA), difficulties are being experienced in American law while evaluating this practice used by parents who come from foreign countries (6). In the USA, it was observed that families from Vietnam practiced coin rubbing on their children with the aim of treatment. Child abuse was primarily considered by physicians because of linear ecchymoses and legal action was initiated. Afterwards, it was learned that this practice was a well-meant traditional therapeutic method and was not performed with anger or fury. Therefore, these cases were no longer reported as child abuse (7). This is not different from the case we have reported. However, exposure of a child to abuse whatever the reason may be considered a crime, even though it is well intended.

In recent years, the issue of child abuse has gradually started to gain importance in the world. The convention on children's rights, which has been approved by many countries in the worldwide, was signed by the Turkish Republic in 1990 and entered into force after approval by the cabinet in 1995. Different codes including the "Turkish Civil Code," the "Turkish Criminal Law," and the "Law on Social Services and Child Protection Institution" include judgements aimed at preventing child abuse and neglect (8).

As in our patient, causing catecholamine discharge by giving painful stimulus to a patient who has poor general status, clouding of consciousness, and shallow breathing may seem to be beneficial until the patient is brought to hospital. However, these types of unhealthy practice, which could harm life but are used as therapeutic methods in different morbidities, are unnecessary and inappropriate in the present time period in which modern medicine has developed this much.

Adrenocorticotropic hormone resistance syndrome was considered in our patient with the hormone tests performed because of hypoglycemia. Adrenocorticotropic hormone resistance syndrome (familial glucocorticoid deficiency) is a rare autosomal recessive disease caused by melanocortin-2 receptor (MC2-R) or melanocortin-2 receptor assistant protein (MRAP) gene mutations in the adrenal gland (9). Glucocorticoid deficiency develops as a result of adrenocorticotropic hormone insensitivity, but production of mineralocorticoids is normal. While water-salt loss is not observed, hypoglycemia, seizure, increased pigmentation in the skin, and developmental delay are frequently observed from the early periods of life. In these patients, serum cortisol level is very low and

ACTH level is very high (frequently above 1000 pg/mL). Renin, angiotensin, and aldosterone levels are usually normal (10). In our patient, the electrolyte levels, plasma renin activity, and aldosterone levels were found as normal.

Osophagogastroduodenal graphy was taken considering that patients with adrenocorticotropic hormone resistance should also be evaluated in terms of AAA syndrome and moderate reflux was found in our patient. The patient was included in follow-up, because it was known that other findings could emerge in time.

Increased adrenocorticotropic hormone level may also be observed in primary adrenal insufficiencies. Congenital adrenal hyperplasia, congenital adrenal hypoplasia, adrenoleukodystrophy, Zellweger syndrome, Wolman disease, autoimmune polyglandular syndrome type 1, and bilateral adrenal hemorrhages are included in this group of diseases (10). These morbidities should be considered in patients with increased adrenocorticotropic hormone level.

In conclusion, education of the community by way of local and mass media on the issue that branding and similar harmful practices (ranula excision, cutting babies with razors to treat jaundice, salting newborns) are not appropriate is still a significant necessity for our country. In addition to public education, "in-service training" in the issue of abuse and neglect and training of pediatricians, family physicians, emergency department physicians, and allied health personnel who may meet with the child should not be forgotten. It would be appropriate to once again emphasize that childrens' problems including abuse and neglect should be evaluated more carefully instead of treating the illness alone. By way of these cases, we are once again reminded that these types of cases should be followed up with a team approach, family education should be a priority, and social services and hospital teams should closely monitor the baby and family.

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