

AN INTERESTING CASE OF COW'S MILK PROTEIN ALLERGY IN THE NEONATAL PERIOD

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ABSTRACT : Cow's milk is the most common cause of food allergy in infants and young children. Little information is available on allergic gastroenteropathy in the neonatal period. We report a newborn with indirect hyperbilirubinemia who developed abdominal distension, apnea, cutis marmoratus and radiographic evidence of ileus secondary to cow's milk allergy. Clinical presentation and importance of careful physical examination and history is discussed with the current literature.

Key Words: Cow's milk allergy, Skin prick test, Special formulae.

INTRODUCTION

Food allergy is defined as an adverse clinical reaction due to type of abnormal immune response resulting from the ingestion of a food or food additive. While over 140 different foods have been shown to produce allergic reactions in humans, foods most often documented as a cause of allergy are cow's milk, hen's eggs, and legumes (especially peanuts) (1). The allergenicity of a particular food is influenced by the manner in which the food is prepared, processed, or stored. For example, heating cow's milk denatures certain component proteins and alters its allergenicity. Denaturation may either reduce allergenicity or increase it by breaking down proteins and exposing epitopes not usually accessible in the intact protein.

CASE REPORT

A male infant, weighing 3.5 kg, was delivered vaginally at 38 weeks gestation to a 26

year-old, gravida 1 woman after an uncomplicated pregnancy. At ten days of life he was diagnosed to have indirect hyperbilirubinemia for which he received phototherapy for two days and was formula fed instead of breast milk. During this time he developed abdominal distension, apnea, cutis marmoratus and radiographic evidence of ileus. Since he was suspected of having some type of Necrotizing Enterocolitis (NEC), he was treated with antibiotics, bowel rest and total parenteral nutrition. He did not develop hematochesia or radiographic evidence of pneumatosis intestinalis. After recovery he was started on feed by formula again and the same clinical situation recurred during these episodes.

Physical Examination:

His respiratory rate was 44 beats per minute, his heart rate 148 beats per minute. His blood pressure was 70/40 mmHg and oxygen saturation was 96%. He was afebrile, and liver and spleen

were nonpalpable. He had abdominal distension, apnea, cutis marmoratus.

Laboratory findings;

Complete blood count Hb: 14g/dl
WBC:12,000/mm³

Plt:285,000/mm³, Peripheral eosinophil 4%,
neutrophils 56%, lymphocyte %40,

Rtc: 1.1%, direct Coombs negative, C-
reactive protein normal.

All the cultures (Blood, urine, cerebrospinal
fluid) were negative. Abdominal radiographs
revealed dilated intestinal loops.

Stools were heme negative. Liver function
tests were normal. Urine and blood aminoacids
were normal. Blood amonium, lactic and pyruvic
acids were normal. Serum immunoglobulin A
level was 68mg/L (13-530mg/L) When the above
symptoms occurred for the third time, he was
evaluated for cow's milk allergy by an
epicutaneously applied skin prick test which was
negative for beta lactoglobulin and positive for
casein (3mm) together with a radioallergosorbent
test which was 1.88 kUA/I (N<0.35).

The patient was placed on an elimination diet
of cow's milk and products of cow's milk by
special formula based on hydrolysed casein and
immediately became free of symptoms and
started to gain weight.

DISCUSSION

Since presenting signs of cow's milk allergy
often mimic NEC, sepsis or metabolic disorders
the diagnosis is often delayed as in our case.

The diagnostic approach to adverse food
reactions begins with a careful medical history
and physical examination (2). Several methods
have been utilized in the evaluation of allergic
food reactions, including skin prick testing,
radioallergosorbent tests (RAST). Skin prick tests
are applied epicutaneously by either the prick or
the puncture technique. A food allergen eliciting
a wheal at least 3 mm or greater is positive.
RAST used to identify food specific IgE
antibodies in the serum (3). However, based on
the cow's milk protein allergy two diagnostic
points are, 1-Response to an elimination diet 2-
Response to a food challenge (4).

Gastrointestinal food allergy still poses a

challenge to the clinician because of its variable
symptomatology and lack of reliable diagnostic
tests.

Gastrointestinal symptoms in food allergy
have been explained by alterations in transport
across the intestinal walls (increased secretory
and/or decreased absorptive functions), increased
permeability and motility of the intestine. The
exact pathogenesis of food allergy is still not
clear. However, the immediate type of food
allergy is believed to be mediated by a type I
hypersensitivity reaction, involving mast cells
and food specific IgE antibodies (5,6). The most
common symptoms of cow's milk protein allergy
are gastrointestinal, cutaneous or respiratory. The
age of the infant at which symptoms start is
largely influenced by the total duration of breast
feeding. When breast feeding is short in duration,
symptoms usually appear during the first month
of life and in 90% by the age of three months.

The treatment of cow's milk allergy is based
on the elimination of cow's milk and of products
containing cow's milk proteins. Elimination
should continue for 9 to 12 months. Special
formulae based on hydrolyzed casein can be
given (7). Patient should be free of all symptoms
to show the response to the elimination diet.

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