

Herniated Lumbar Disc Associated With Pertussis

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The incidence of pertussis has shown a remarkable decline in the last 50 years. In 1934 there were 265,269 cases in the United States with a mortality of 7,000. In 1976 the incidence of pertussis was reduced to 1,010 cases with seven deaths reported.¹ The development of pertussis vaccine in the 1950s was the primary cause of this decline. The vaccine does not give protection for life, such as the natural disease itself provides. The immunity is strongest during the first three years after vaccination and diminishes gradually after 12 years.² As a result, there are populations of young adults who received the vaccine in the first year of life³ in whom outbreaks of pertussis have been reported.^{4,5} This paper reports a case of pertussis in an adult woman who developed peripheral neurological symptoms, probably as a result of a herniated disc, a complication not previously reported.

CASE REPORT

A female patient, aged 39 years, born in India and living in an Israeli kibbutz, came to the clinic complaining of coughing attacks and hoarseness at the time of a pertussis epidemic. The physical examination was unremarkable.

Two weeks later the patient returned still complaining of attacks of coughing and hoarseness. She also felt a heaviness in her left leg. There were no complaints of back pain.

On physical examination she was found to have a weakness of the iliopsoas and gastrocnemius with absence of the patellar reflex. Rectal and vaginal examinations and the remainder of the neurological examination were normal.

The hemoglobin was 130 g/L (13.0 g/dL), leucocytes $10.5 \times 10^9/L$ ($10.5 \times 10^3/\mu L$) with 0.40 lymphocytes. Virus serologic studies (Epstein-Barr virus, cytomegalo-

virus, influenza, parainfluenza, adenovirus) were negative. Complement fixation test for mycoplasma, ultrasound of the retroperitoneum and lower abdomen, and x-ray studies of lumbar spine including oblique views were all unremarkable. Pertussis antibodies were 1:1,280 at the first examination, and 1:10,400 three weeks later. Computerized tomography of the spine showed herniation of disc L3-4 with no signs of tumor. After three months, both the cough and the weakness of the leg disappeared, and the knee reflexes returned.

DISCUSSION

Pertussis is usually considered a children's disease, but there are several reports of outbreaks among adults.⁵ The clinical course is atypical in adults, and in the absence of an epidemic, the diagnosis can be difficult.⁴ Since the vaccination does not provide lifelong immunity (as does the disease itself), the adult population is at risk, and a change in the epidemiology of this disease is possible.^{2,3} The adult population can become carriers and contribute to outbreaks of pertussis in the world.⁶

This patient presented with a cough at a time when there were 64 cases, serologically proven, of pertussis in the kibbutz. The diagnosis was made by a rise in titer of pertussis antibodies (1:1,280 to 1:10,400). Serologic tests for viral illnesses and mycoplasma were negative. A pharyngeal culture was not done for *Bordetella pertussis*, because the diagnosis of pertussis was considered at the paroxysmal stage when such isolation is unlikely. The change of titer of pertussis antibodies ($\times 10$) and the appearance of illness at the time of the outbreak of pertussis in the kibbutz strongly supported the diagnosis of pertussis in this patient.

The most common complication of pertussis is pneumonia, which causes 90 percent of deaths among children under the age of 3 years. Atelectasis, otitis media, activation of latent tuberculosis infection, loss of consciousness, convulsions, ulcer of the frenulum of the tongue, and tetany have also been reported.⁷ Additional complications are bleeding in various parts of the body after severe paroxysms, such as subconjunctival hemorrhage, melena, ep-

Submitted July 6, 1988.

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TEMOVATE®

(clobetasol propionate)

Cream, 0.05% Ointment, 0.05%
(potency expressed as clobetasol propionate)**For Dermatologic Use Only — Not for Ophthalmic Use.****BRIEF SUMMARY**

The following is a brief summary only. Before prescribing, see complete prescribing information in TEMOVATE® Cream and Ointment product labeling.

CONTRAINDICATIONS: TEMOVATE® Cream and Ointment are contraindicated in patients who are hypersensitive to clobetasol propionate, to other corticosteroids, or to any ingredient in these preparations.

PRECAUTIONS: General: TEMOVATE® is a highly potent topical corticosteroid that has been shown to suppress the HPA axis at doses as low as 2 g per day. Systemic absorption of topical corticosteroids has resulted in reversible HPA axis suppression, manifestations of Cushing's syndrome, hyperglycemia, and glucosuria in some patients.

Conditions that augment systemic absorption include the application of the more potent corticosteroids, use over large surface areas, prolonged use, and the addition of occlusive dressings. Therefore, patients receiving a large dose of a potent topical steroid applied to a large surface area should be evaluated periodically for evidence of HPA axis suppression by using the urinary free cortisol and ACTH stimulation tests. If HPA axis suppression is noted, an attempt should be made to withdraw the drug, to reduce the frequency of application, or to substitute a less potent steroid.

Recovery of HPA axis function is generally prompt and complete upon discontinuation of the drug. Infrequently, signs and symptoms of steroid withdrawal may occur, requiring supplemental systemic corticosteroids.

Children may absorb proportionally larger amounts of topical corticosteroids and thus be more susceptible to systemic toxicity (see PRECAUTIONS: Pediatric Use).

If irritation develops, topical corticosteroids should be discontinued and appropriate therapy instituted.

In the presence of dermatologic infections, the use of an appropriate antifungal or antibacterial agent should be instituted. If a favorable response does not occur promptly, the corticosteroid should be discontinued until the infection has been adequately controlled.

Certain areas of the body, such as the face, groin, and axillae, are more prone to atrophic changes than other areas of the body following treatment with corticosteroids. Frequent observation of the patient is important if these areas are to be treated.

As with other potent topical corticosteroids, TEMOVATE Cream and Ointment should not be used in the treatment of rosacea and perioral dermatitis. Topical corticosteroids in general should not be used in the treatment of acne.

Information for Patients: Patients using TEMOVATE should receive the following information and instructions:

1. This medication is to be used as directed by the physician and should not be used longer than the prescribed time period. It is for external use only. Avoid contact with the eyes.
2. This medication should not be used for any disorder other than that for which it was prescribed.
3. The treated skin area should not be bandaged or otherwise covered or wrapped so as to be occlusive.
4. Patients should report any signs of local adverse reactions to the physician.

Laboratory Tests: The following tests may be helpful in evaluating HPA axis suppression:

- Urinary free cortisol test
- ACTH stimulation test

Carcinogenesis, Mutagenesis, Impairment of Fertility: Long-term animal studies have not been performed to evaluate the carcinogenic potential or the effect on fertility of topical corticosteroids.

Studies to determine mutagenicity with prednisolone have revealed negative results.

Pregnancy: Teratogenic Effects: Pregnancy Category C: Corticosteroids are generally teratogenic in laboratory animals when administered systemically at relatively low dosage levels. The more potent corticosteroids have been shown to be teratogenic in animals after dermal application. Clobetasol propionate has not been tested for teratogenicity by this route; however, it appears to be fairly well absorbed percutaneously, and when administered subcutaneously it proved to be a relatively potent teratogen in both the rabbit and mouse.

There are no adequate and well-controlled studies of the teratogenic effects of topically applied corticosteroids in pregnant women. Therefore, topical corticosteroids should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Drugs of this class should not be used extensively on pregnant patients, in large amounts, or for prolonged periods of time.

Nursing Mothers: It is not known whether topical administration of corticosteroids could result in sufficient systemic absorption to produce detectable quantities in breast milk. Systemically administered corticosteroids are secreted into breast milk in quantities not likely to have a deleterious effect on the infant. Nevertheless, caution should be exercised when topical corticosteroids are prescribed for a nursing woman.

Pediatric Use: Use of TEMOVATE Cream and Ointment in children under 12 years of age is not recommended. Pediatric patients may demonstrate greater susceptibility to topical corticosteroid-induced HPA axis suppression and Cushing's syndrome than mature patients because of a large skin surface area to body weight ratio.

HPA axis suppression, Cushing's syndrome, and intracranial hypertension have been reported in children receiving topical corticosteroids. Manifestations of adrenal suppression in children include linear growth retardation, delayed weight gain, low plasma cortisol levels, and absence of response to ACTH stimulation. Manifestations of intracranial hypertension include bulging fontanelles, headaches, and bilateral papilloedema.

ADVERSE REACTIONS: TEMOVATE® Cream and Ointment are generally well tolerated when used for two-week treatment periods.

The most frequent adverse reactions reported for TEMOVATE Cream have been local and have included burning sensation (4 of 421 patients) and stinging sensation (3 of 421). Less frequent adverse reactions were itching, skin atrophy, and cracking and fissuring of the skin (1 of 421).

The most frequent adverse events reported for TEMOVATE Ointment have been local and have included burning sensation, irritation, and itching (2 of 366 patients). Less frequent adverse reactions were stinging, cracking, erythema, folliculitis, numbness of fingers, skin atrophy, and telangiectasia (1 of 366).

The following local adverse reactions are reported infrequently when topical corticosteroids are used as recommended. These reactions are listed in an approximately decreasing order of occurrence: burning, itching, irritation, dryness, folliculitis, hypertrichosis, acneiform eruptions, hypopigmentation, perioral dermatitis, allergic contact dermatitis, maceration of the skin, secondary infection, skin atrophy, striae, and miliaria. Systemic absorption of topical corticosteroids has produced reversible HPA axis suppression, manifestations of Cushing's syndrome, hyperglycemia, and glucosuria in some patients. In rare instances, treatment (or withdrawal of treatment) of psoriasis with corticosteroids is thought to have provoked the pustular form of the disease.

OVERDOSAGE: Applied TEMOVATE® can be absorbed in sufficient amounts to produce systemic effects (see PRECAUTIONS).

DOSE AND ADMINISTRATION: A thin layer of cream or ointment should be applied with gentle rubbing to the affected skin areas once in the morning and once at night. TEMOVATE® Cream and Ointment are potent; therefore, treatment must be limited to 14 days, and amounts greater than 50 g per week should not be used. TEMOVATE Cream and Ointment are not to be used with occlusive dressings.

istaxis, intraventricular subarachnoid hemorrhage, and spinal and epidural hematomas. Diaphragmatic hernia, diaphragmatic rupture, inguinal hernia, and rectal prolapse have also been reported.⁸

Most reports of neurological disorders in pertussis are those of complications of the vaccination rather than of the illness itself. The neurological complications during a pertussis illness occur as a result of brain hypoxia, after prolonged paroxysms, and consist of loss of consciousness, convulsions, or bleeding in the central nervous system (cerebral or spinal cord). There are no reports of disc herniation in patients with pertussis.

This patient contracted pertussis and in the course of the illness developed a weakness of the leg and absence of reflex of the patella.

Subsequent examination showed herniation of L3-4 as a probable explanation of the clinical symptoms. It is possible that B pertussis itself or its toxins could have caused the peripheral neurological involvement, but such an occurrence has never been reported. It is also possible that the herniated disc could have preceded the pertussis, but the concurrent appearance of disc symptoms with evidence of pertussis and their disappearance after resolution of the cough make this possibility unlikely.

In most cases of herniation of a lumbar disc, the precise cause cannot be determined. In this patient, however, it is likely that increased disc pressure during cough paroxysms was a contributing factor.

References

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