Case Report **OPEN ACCESS**

Ptyalism gravidarum

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Abstract
Context: Ptyalism gravidarum is of unknown origin and is usually defined as an excessive secretion of saliva, common in women with nausea and vomiting who might have difficulty in swallowing their saliva. **Case report:** We present here 2 cases complicated by ptyalism gravidarum during all trimesters of pregnancy. In one case, ptyalism recovered spontaneously at 35-36 weeks' gestation, and in the other case, it recovered after delivery. **Conclusion:** Ptyalism gravidarum may not be a serious condition leading to adverse perinatal outcomes, however there may not be any satisfactory treatment.

Keywords: Ptyalism gravidarum, hyperemesis gravidarum, treatment.

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Introduction
Prenatal patients usually are distressed and uncomfortable by the increased salivation referred to as ptyalism or sialorrhea gravidarum [1, 2]. These conditions are usually associated with nausea and vomiting (emesis or hyperemesis) during the first trimester of pregnancy. In rare cases, the increased salivation associated with hyperemesis does not abate at the end of the first trimester but continues, or even increases in amount, until delivery [1-7].

The following case studies describe two patients complicated by ptyalism during all trimesters of pregnancy.

Case Report
Case one
A 34-year-old Japanese female (gravida 1, parity 0) complained of excessive salivation (approximately 1-1.5 L/day) accompanied by severe nausea and vomiting during the first trimester of pregnancy. Her medical and genetic family and past histories were unremarkable. Her appetite returned at 14-15 weeks' gestation; however, ptyalism persisted. Because she disliked receiving medical treatment during pregnancy, she chewed gum or sucked ice to cope with ptyalism. Her total weight gain during pregnancy was 9.7 kg. Ptyalism recovered spontaneously at 35-36 weeks' gestation. At 38 weeks' gestation, she gave birth normally to a male infant with a birth weight of 2634 g (appropriate for gestational age).

Case two
A 23-year-old Japanese female (gravida 1, parity 0) complained of excessive salivation (approximately 1-1.5 L/day) accompanied by severe nausea and vomiting during the first trimester of pregnancy. Her medical and genetic histories were unremarkable. Her appetite returned at 10-12 weeks' gestation; however, ptyalism persisted. Although she was treated with phenobarbital, piperidolate HCL and alpinia oxyphylla, salivation continued until delivery. Her total weight gain during pregnancy was 6.3 kg. At 39 weeks' gestation, she gave birth normally to a male infant with a birth weight of 2895 g (appropriate for gestational age). Ptyalism recovered spontaneously after delivery.

Discussion

Based on previous reports [1, 2, 4-6] as well as our 2 cases, ptyalism gravidarum may not be a serious condition leading to adverse perinatal outcomes; however there may not be any satisfactory management for this rare complication.

Ptyalism gravidarum is of unknown origin and is usually defined as an excessive secretion of saliva. These patients might have had difficulty in swallowing their saliva and required spitting cups, paper tissue or cloth wicks throughout all trimesters of pregnancy [1, 3]. Using gum or ice may be temporary coping strategies; however, the patients always complain of bad taste and maintain that swallowing the excessive or thickened saliva perpetuates the sense of nausea [1, 3]. Ptyalism may diminish during sleep, however the patients may complain of excessive secretions as one cause of nocturnal wakening [1]. In addition, social encounters may be limited during pregnancy [1, 3].

Some researchers consider that ptyalism gravidarum has a physiologic, not psychologic origin [2, 3, 5, 6]. It is generally agreed that salivary secretion is under neural control and that stimulation of the parasympathetic nerve supply of the salivery gland causes a profuse watery secretion with very little organic content [2, 3]. To date, some medical literature has recommended the use of central nervous system depressants such as barbiturates, anticholinergics such as belladonna alkaloid, or phosphorated carbohydrate [1-6]. In addition, Japanese patients sometimes use alpinia oxyphylla (a medicinal plant in China used for digesting, antidiuresis and/or salivation restraint) for the treatment of ptyalism gravidarum; however, individual differences in the effects of alpinia oxyphylla seem to be large. Therefore, there is no satisfactory treatment currently available for this complication during pregnancy.

Based on previous reports [1, 2, 4-6] as well as our 2 cases, the pathogenesis, characteristics or healing of ptyalism gravidarum were not well examined. Recently, we have encountered another case of ptyalism healed by chiropractic treatment at 20 weeks' gestation (33-year-old Japanese pregnant female, gravida 1, parity 0; unpublished case). Although ptyalism has been reported to occur more often in psychotic women, our additional case may also support the possibility of physiologic origin associated with the sympathetic and parasympathetic nerve systems [2, 3]. Further study is needed to determine the physiologic origin of ptyalism gravidarum and to identify appropriate treatment methods by accumulation of similar case reports.

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