原文題目(出處)：	Lipoblastoma: A rare soft palate mass. Int J Pediatr Otorhinolaryngol Extra 2010;5:134-7
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報告日期：	99.09.10

內文：

1. Introduction

· **Lipoblastomas** are **rare, benign, adipose tumors** that are composed of embryonic fat tissue of **different maturation stages ranging from prelipoblasts to lipoblasts and finally mature lipocytes**.

· These tumors are extremely rare and comprise **2% of pediatric soft tissue tumors**.**80%** of lipoblastomas present in children **before 3 years of age**.

· The majority of the lesions involve the **extremities** and the **trunk**.

· Histologically, lipoblastomas have a multilobular pattern composed of adipocytes at different maturation stages **divided by mesenchymal areas with a loose myxoid matrix and connective tissue septa** .

· Sometimes, lipoblasts may not be found and the matrix might have a **plexiform vascular pattern**, making the differentiation between lipoblastomas and lipomas or myxoid liposarcoma difficult.

· In such cases, additional cytogenetic analysis is helpful. Forty-three abnormal karyotypes for lipoblastomas have been reported in the literature. In all cases, **chromosome 8** anomalies including rearrangements in number or structure have been described.

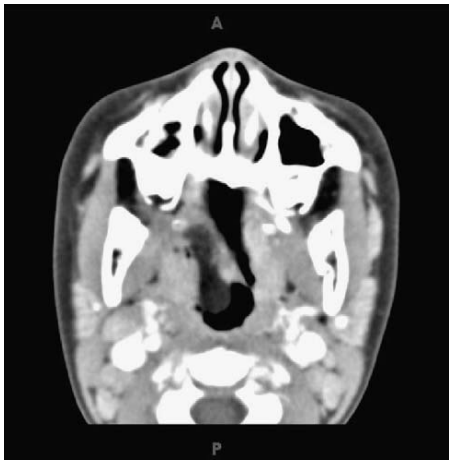
· Approximately **80%** of those cases have shown clustering of breakpoints to **the 8q11-13 region**. These chromosomal rearrangements target the **Pleomorphic adenoma gene-1 (PLAG1)** located on chromosome **8q12**. The PLAG1 oncogene becomes overexpressed by a promoter-swapping event. Two different genes have been found to fuse with PLAG1 and promote the upregulation of the tumor cells: **Hyaluronan synthase 2 (HAS2)** at **8q24**.1 and **Collagen type I alpha-2 (COL1A2)**

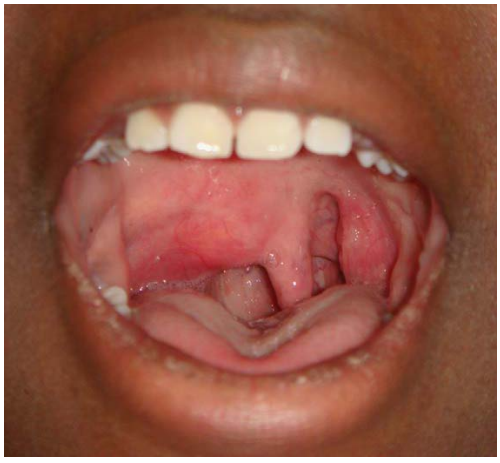
at **7q22**, forming HAS2-PLAG1 and COL1A2-PLAG1.
This receptor activates downstream substrates, resulting in activation of the **Mitogenactivated protein protein kinase (MAPK)** signaling pathway and the **Phosphoinositide 3-kinase (PI-3)/AKT** pathway, which are critical pathways in regulating **proliferation and apoptosis in human cells**.

· We report the first known case of a **soft palate** lipoblastoma in an 8-year-old girl. Additionally, we present one of the first descriptions of a lipoblastoma lacking the characteristic rearrangement in chromosome 8, but having abnormalities more frequently encountered in other lipomatous and soft tissue tumors, such as a **translocation between chromosomes 1 and 2** and the presence of **ring and marker chromosomes**.

2. Report of case

· An 8-year-old girl initially presented with a right soft palate mass. **Computed tomography evaluation** showed a 1.5 cm _ 3.5 cm fat attenuated mass in the soft palate. It extended into the oropharynx and displaced the uvula to the contralateral side.
The pathology evaluation demonstrated a **lobular configuration with fibrous septa and frequent peripheral lipoblasts compatible with a maturing lipoblastoma**.

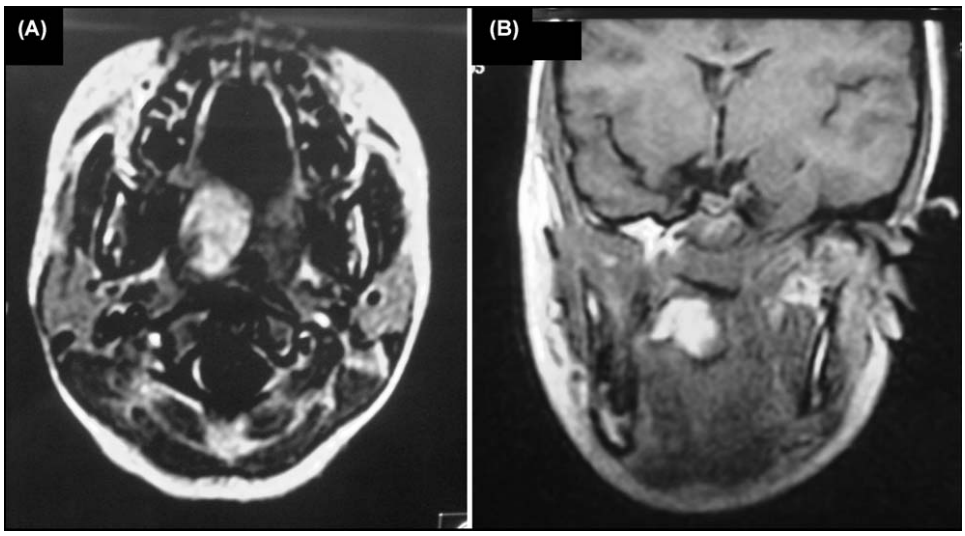




· **Three years later the patient returned with recurrence of the mass.** Her symptoms included right nasal obstruction, snoring, choking and a gagging sensation. There were no witnessed apneas and the patient had a normal voice without hypo or hyper-nasality.
On examination, there was a large right soft palate mass obstructing the right tonsil and deviating the uvula to the left. **On palpation, the mass was soft and non-tender**. There was **no cervical lymphadenopathy** or other lesions noted in the head and neck

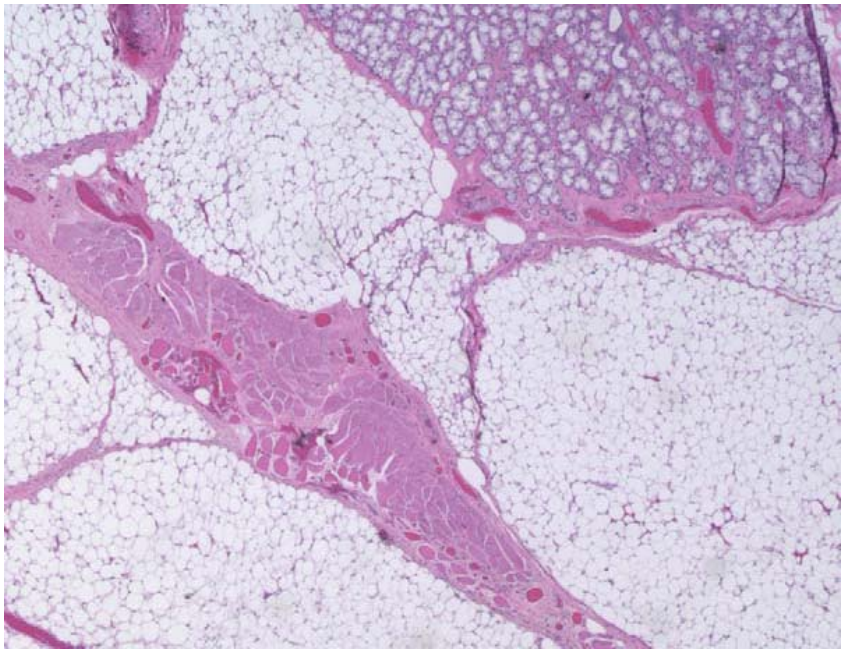
exam.

· A **magnetic resonance imaging (MRI)** study with **gadolinium** was performed which showed a 1.5 cm_ 3.2 cm_ 2.7 cm fatty lesion of the right soft palate extending laterally to the right tonsil.



· **A right tonsillectomy was also performed to ensure clear margins. Frozen sections from all margins were negative for tumor.**

· The final pathology showed again a lobular configuration of the lesion with fibrous septa and frequent immature elements (lipoblasts) at the periphery of the lobules, consistent with a maturing lipoblastoma.



· Previous amniocentesis that the mother underwent when she was pregnant showed that **the patient's karyotype had normal chromosomes (46 X,X)**. A cytogenetic

analysis of the lesion was performed. Ten metaphases were analyzed and one cell line was observed. The abnormalities in the detected clone (10/10 cells) included a **derivative chromosome 2 formed by an unbalanced translocation between the short arm of chromosome 1 and the long arm of chromosome 2**; **3–6 ring chromosomes**; and a **marker chromosome of unknown origin**.

· Therefore, the **karyotype of tumor cells** described according to the International System for Human Cytogenetic Nomenclature (ISCN) 2005 was: **49-52 XX,der(2)t(1;2)(p31;q37), +3-6r, +mar**. Given the association of lipoblastomas and abnormalities in **chromosome 8**, interphase and methaphase fluorescence in situ hybridization (FISH) **were performed revealing no chromosomal abnormalities**.

3. Discussion

· The typical presentation for lipoblastoma is a **painless, enlarging soft tissue mass**. Two types of lipoblastoma exist: a **well-defined, encapsulated** form simply called **lipoblastoma**,
and a diffuse, **ill-margined** form called **lipoblastomatosis**.
Lipoblastomatosis lesions are considered to have a slightly higher recurrence rate than lipoblastomas. Both types can exhibit rapid growth and generate mass effect on surrounding structures.

· Pathologic analysis generally establishes the definitive diagnosis of lipoblastomas. A subclassification of lipoblastomas based on histological findings has been proposed:

(1) the classic type, where a myxoid matrix composed of **spindle cells**, **stellate mesenchymal cells**, and **intercellular mucin** is seen **in the background** of an adipocytic component;
(2) **myxoid lipoblastomas** where marked interstitial mucin is found;
(3) **lipoma-like lipoblastomas missing the myxoid component** and formed mainly of mature adipocytes;
(4) **hibernoma-like lipoblastomas** lacking a myxoid component and made principally of **multi-vacuolated lipoblasts**.

Occasionally, morphologic studies are insufficient to obtain a definitive diagnosis. In such cases, additional genetic analysis might be necessary to distinguish lipomatous tumors,
particularly when **differentiating a benign from a malignant lesion** given their

distinct prognostic implications.

3.1. Genetics characteristics of lipomatous tumors

· Most lipomatous tumors have characteristic chromosomal rearrangements, affecting the expression or regulation of **specific proteins**, making cytogenetics an important tool for
diagnosis.

3.1.1. Lipoblastomas

· Upregulation of the **PLAG1** transcription factor by chromosomal rearrangements, targeting chromosomal region **8q11-13**, is a common event in lipoblastomas. Some lipoblastomas have **trisomy of chromosome 8** but lack a specific translocation. Of note, **rearrangements on PLAG1 have been reported in all subtypes of lipoblastomas** .

3.1.2. Myxoid liposarcomas

· In **well-differentiated liposarcomas**, the most common chromosomal abnormalities are **supernumerary ring and giant marker chromosomes**.

· Generally, amplified sequences from **12q** are found in these aberrant chromosomes. Rearrangements of the **DNA damage-inducible transcript 3 (DDIT3 or CHOP)** gene due to chromosomal abnormalities in **12q13** are common in liposarcomas. Two different genes have been reported to fuse with CHOP giving rise to **transcriptional upregulators**: **CHOP/FUS** fusion gene, in **16p11**, and **CHOP/Ewing** sarcoma breakpoint region 1 (EWS), in **22q12.9**. These oncoproteins affect the expression of genes related to **adipocytic differentiation**.

· **Mouse double minute 2 homolog (MDM2)** is another oncogene altered in liposarcomas. MDM2 binds and inhibits **TP53** promoting cell cycle progression. Occasionally, **lipoblastomas have a plexiform vascular pattern**, a finding also seen in **myxoid liposarcoma** making adequate diagnosis challenging.

3.1.3. Lipomas

· Sixty percent of lipomas have rearrangements of chromosome **12q13-15** targeting

the **HMGIC gene**. HMGIC encodes a DNA binding protein which up regulates **the growth and differentiation of mesenchymal cells** . Less frequently, a **deletion of 13q** or a **rearrangement of 6p21-22** has been reported.

3.1.4. Hibernomas

· Lipomatous lesions with **brown fat differentiation** are classified as hibernomas. Typically, hibernomas are **asymptomatic and slow growing**. Alteration in regions **11q13** and **10q22** are common in these lesions.

· Alterations in **chromosome 1 and 2** have been occasionally reported in **hibernomas** and other benign soft tissue tumors such as **uterine leiomyomas**.

· Ring and marker chromosomes are considered non-specific findings, which have been seen in **atypical lipomas** and **well-differentiated liposarcomas**.

· Although the definitive treatment for lipoblastoma is complete resection with negative margins, **tumor recurrence has been reported in 13–20%** of the patients.

· Late recurrences are **not uncommon** and lesions recurring **10 years after initial resection** have been reported. Although lipoblastomas might evolve into mature fat and involute with aging, the recurrence rate of these lesions suggests long-term surveillance is necessary.

4. Conclusion

· We report an interesting case of a recurrent lipoblastoma arising in the soft palate of an 8-year-old girl. Cytogenetic analysis of the tumor revealed absence of chromosometraditional 8 abnormalities, and the presence of translocations of chromosomes 1–2, a 3–6 ring chromosome, and a marker chromosome. The traditional morphologic
appearance of the tumor and the absence of malignant features suggestive of liposarcoma give added confidence of the diagnosis of lipoblastoma. Due to the relatively high recurrence rate of lipoblastomas, surveillance is recommended.

題號	題目
1	**Which of these doesn't have a true lumen containing fluid, but might have the fluctuation？** **(A)** Squamous cell carcinoma **(B)** Lipoma **(C)** Hematoma **(D)** Warthin's tumor
答案 (B)	出處： **Differential Diagnosis of Oral and Maxillofacial Lesions, 5th Edition, P.28-29**
題號	題目
2	**Which of these is not a fatty tumor？** **(A)** Lipoma **(B)** Hibernoma **(C)** Xanthoma **(D)** Myxoma
答案 (D)	出處： **Differential Diagnosis of Oral and Maxillofacial Lesions, 5th Edition, P.30**