Louis Armstrong's Lip Problems: Satchmo's Syndrome Reviewed

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Rupture of the orbicularis muscle of the lips in wind musicians is known as Satchmo's syndrome because it is assumed that Louis Armstrong (nicknamed Satchmo) suffered this condition. But whether Louis Armstrong really had this problem or not has never been documented. AIMS: This study is a biographical review and an analysis of the existing photographs of Armstrong's lip with the aim of better understanding the origin and progression of his disorder. **METHODS:** A review was made of the most important biographies, newspapers, and magazines referring to Louis Armstrong and medical reports about Satchmo's syndrome. Major archives related to Louis Armstrong were searched for documents, photographs, articles, videos, letters, and other items, using the terms "lip," "embouchure," "mouth," and "problem." Information was sought on Armstrong's playing technique, playing schedule, lip changes, lip problems, and other related health issues. **RESULTS:** It was found that Louis Armstrong suffered dermatological lip problems due to his intense playing schedule and the way he played from the very beginning of his career. This first created swelling and superficial erosions that later became cracks and fissures. These lesions finally produced ulcers which evolved into scar tissue after healing. This made the mucosa thicker and stiffer, making it more difficult for the lip to vibrate and forcing him to increase the tension and pressure in the area in order to play the trumpet. This created a vicious cycle with the scar tissue leading to further problems. These injuries even bled several times while he was playing and, on some occasions, left his mouth and clothes bloodied in the middle of concerts. His biography does not make any reference to difficulties or symptoms that could indicate that he had orbicularis oris muscle rupture, except for the fact that he had trouble playing, a symptom common to any injury to the lips in a wind instrument player. **CONCLUSION:** Analysis of the existing data indicates that Louis Armstrong's lip problems were most likely due to mucosa fibromatous hyperplasia resulting from chronic microtrauma rather than a rupture of the orbicularis oris muscle. Therefore, we propose that this disorder should no longer be referred to as Satchmo's syndrome. *Med Probl Perform Art* 2023;38(1):1–8.

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ONE OF THE MOST characteristic injuries of wind musicians is the rupture of the orbicularis oris muscle, considered by some authors as a common problem, mostly in trumpet players.[1–4] Planas was the first to describe this condition and suggested the name Satchmo's syndrome for this complaint as the author believed that Louis Armstrong (nicknamed Satchmo) suffered from this ailment.[1]

Armstrong's playing was characterized by using high and loud notes. Some authors stated that he used unnecessary additional pressure on his lips.[5] To further complicate matters, ever since his childhood, he had overused his embouchure.[6] It is therefore not surprising that he had many lip problems and was a candidate for a muscle rupture.

But there are some aspects that go against the possibility of Armstrong having a ruptured orbicularis oris muscle. Papsin stated that it is very difficult to recover from this injury without undergoing surgery.[7] However, Armstrong always rejected medical treatment for his lips and was able to maintain his high-level performance throughout his career.[5] We actually know that this condition can be recovered through conservative treatment. However, based on our experience, it does require a very specialized treatment protocol and can take many months.[8] But this kind of therapy did not exist in Armstrong's days. On the other hand, although the symptoms can be very diverse, our patients with orbicularis oris rupture would report acute lip pain that appears while playing, often associated with swelling of the lips and a slight thickening at the point where the musician felt the pain.[8] This produces embouchure weakness, difficulties in reaching high notes, and poor sound quality.[7,8] All this implies a considerable drop in the musician's playing capabilities. None of these symptoms or problems have been mentioned in Louis Armstrong's biographies, and he never lost his high notes or sound quality.[9]

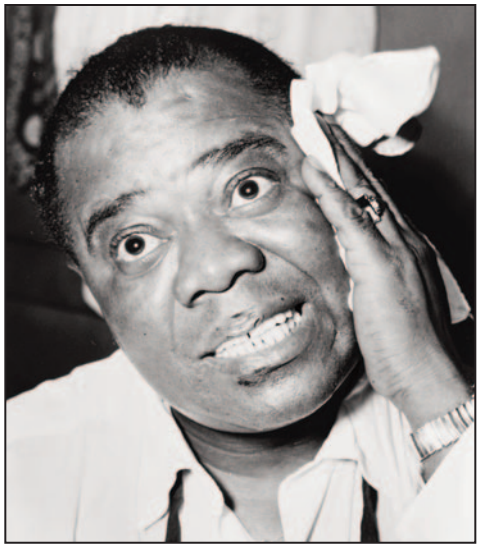

FIGURE A. Armstrong in 1953. Photographed by Herman Hiller, *New York World-Telegram & Sun*. Source: Library of Congress, https://www.loc.gov/pictures/item/97518323/

Many of the aspects mentioned in biographies are facts quoted from third party sources, and it is difficult to determine their reliability. To top it all off, Armstrong had indirect relationships with the Italian American mafia (the mob). All his managers had mob connections.[10] This caused Armstrong several personal problems that affected his professional activity, making it even more difficult to interpret certain facts. Thus, for example, the cancellations of some concerts were publicly attributed to "lip problems" and, quite possibly, behind them were other problems that could not be openly explained. Armstrong himself stated that one of the main reasons for doing European tours or stays in other countries was to escape the mafia.[5,11]

For all these reasons, we think that there is not enough information in the medical literature about Louis Armstrong's lip problems, and it is not possible to say whether he suffered a rupture of the orbicularis oris muscle or not. This study aims to gather information from direct sources, biographies, and existing close-up pictures of his lips to try to gain a better understanding of what happened to his lips.

METHODS

A review was made of the most important biographies, newspapers, and magazines referring to Louis Armstrong and medical reports about Satchmo's syndrome. A study was made of documents in The Museum Archives of the Louis Armstrong Archive, from the Louis Armstrong House Museum (collection of more than 60,000 documents including photographs, articles, videos, letters, and many other items related to Louis Armstrong, available at https://collections.louisarmstronghouse.org/search-results), and the Louisiana Digital Library (with more than 24.000 files, https://louisianadigitallibrary.org).

The terms "lip," "embouchure," "mouth," and "problem" were used separately to select the documents in these databases. A search was made for information referring to Louis Armstrong's playing technique, playing schedule, lip changes, lip problems, and other related health issues. All sentences or words taken literally from the sources appear in this article in quotation marks and italics.

An attempt was made to find at least one image per year. Photos that were not precisely dated were discarded. One of the authors, Ramon Grimalt, a dermatologist, reviewed and described the visible lip injuries in all close-up photos where the lips can be analyzed with enough detail and quality. This study was approved by the This study has been approved by the Ethics Committee of *Fundació Ciència i Art*, reference FCA11-2021/11/10.

RESULTS

A total of 160 documents related to the term "lip" were identified and reviewed in the digital archives, an additional 3 referred to "embouchure," 345 to "mouth," and 22 to "problem." Any with no relation to Louis Armstrong's lip problems, those where the source of the information was not documented, and those that repeated the same facts were discarded. The information finally used came from 28 articles and interviews.[6,9,12–37]

A total of 19 Louis Armstrong biographies were also studied. Thirteen contained relevant information about his lip problems.[5,10,11,38–47] An inspection was also made of 457 photos from the Louis Armstrong Home Museum and 156 from the Louisiana Digital Library. Most images, such as Figure A presented here, were discarded for analysis due to quality, light effects, or other problems. For instance, at first glance, Figure A seems to show problems at both lips. But a detailed zoom-in observation demonstrates that this is probably just a visual effect and there is no injury in the lower lip. The final selection was of 27 photos dated 1920, 1925, 1931 (2), 1932, 1933, 1934, 1936, 1937, 1938, 1939, 1942, 1943, 1944, 1945, 1947, 1949, 1952, 1954, 1955, 1958, 1959, 1964, 1965 (2), 1966, and 1970 (Figs. 1–27). Those from 1955 and 1970 are color photographs (Figs. 21 and 27) (Table 1).

1. Louis Armstrong's playing technique

Louis Armstrong was mostly self-taught. He started playing a tin horn with a wooden mouthpiece, and then switched to the horn at age 11. At the Colored Waif's Home for Boys (a reform school where he was interned in 1913 for a year and a half), he played the tenor horn, the bugle, and finally the cornet.[48] He switched from cornet to trumpet during his stint under the Erskine Tate's Vendome Theatre Orchestra, in 1925.[41]

From the very beginning of his career, he had difficulties playing in the upper register and twisted the horn to go higher.[23] He further improved this twisting effect by cutting grooves in the mouthpiece rim so it could better cling to the skin.[23,48] He gained register to the point that high notes became his trademark.

TABLE I. Dermatological Description of Louis Armstrong's Lips from Analysis of Selected Close-up Photographs

Photo Date (Photo No.)	Description of Visible Lip Damage
Before 1925[F1]	At the very early stages, there was nearly no damage and both lips look fine.
1925[F2]	We can already see damage to the upper lip mucosa. It is hard to accurately diagnosis the process with the low-quality of the image, but the appearance suggests cracking and later thickening of the lip.
1931[F3]	In this image, the extension of the upper lip damage coincides precisely with the mouthpiece contact zone.
1931[F4]	The lip damage extends beyond the mucosa, suggesting that friction and overuse might be related to the injury.
1932[F5]	From this image, it is also possible to see that the damage not only affects the upper mucosa but also the lower lip, friction and overuse being the most probable cause of this clinical condition.
1933[F6]	This photo shows an improvement in the visible clinical dermatological damage. This is not consistent with the reports about his activity and lip problems at this time. This, together with the appearance of the skin and the precise definition of the lips, might suggest that the image has been modified for commercial purposes.
1934[F7]	In this photo we can clearly see the precise image of the mouthpiece stamped on Armstrong lips. Both upper and lower lips show the imprint of the metal that presses on his embouchure area. Cracking and thickening are obvious.
1936[F8]	This is not a clear image, but some mucosal damage can also be observed, suggesting mucosa thickening and probably also cracking.
1937[F9]	The shadow of the mouthpiece partially covers the affected area on the lower lip, but both upper and lower lips look altered with erosions and chronic damage.
1938[F10]	The upper lip looks thickened and swollen. Probably he had just stopped playing at the moment this photo was taken.
1939[F11]	Both lips look affected in this photo, although the upper lip is clearly more altered.
1942[F12]	Both lips are affected in this image. Friction and overuse lead to ulceration, scarring, and mucosa thickening.
1943[F13]	This is the first detailed image in which a double transversal fissure is visible on the upper lip.
1944[F14]	We can appreciate thickening of the upper lip mucosa as a response to continuous friction and rubbing with the metal of the mouthpiece.
1945[F15]	Lip already showing, for the first time, a callus-like lesion. The lip mucosa not only looks fissured but also thickened.
1947[F16]	In this image we can see an ulcer on the upper lip. The lip of the philtrum looks thin, with less volume. The lower lip mucosa also has visible changes.
1949[F17]	Lip alterations clearly affecting the right part of the lower lip and the central portion of the upper lip. Cracking and thickening of the mucosa can be seen in this image.
1952[F18]	He developed a well-circumscribed ulcer on the exact pressure point of the upper part of the mouthpiece. There is still a rib that prevented the lip from detaching.
1954[F19]	A close-up of Armstrong's mouth showing cracking and scarring. A local ulcer can also be seen in the upper part of the upper lip with important thinning of the central part of the upper lip.
1955[F20]	One of the first color pictures of Louis Armstrong. The mouthpiece imprint is obvious on the upper lip. The photo does not reveal ulceration, but there is a vertical fissure on the lower lip.
1958[F21]	Ulceration, scarring, and mucosa thickening are clearly visible.
1959[F22]	From a side view, the amount of scarring and deformation is clearly obvious. There is a deep horizontal fissure in the vermillion area and some scar and probably callus-like tissue is present underneath.
1964[F23]	Depression, thickening and scarring of the mucosa are all visible, but the volume of the upper lip seems to have partially recovered.
1965[F24]	From a different angle, the inner part of the upper lip mucosa is observable. The whitish aspect suggests callus-like tissue overgrowth.
1965[F25]	This is a tremendous image of the situation of the lip that Armstrong deliberately used as a cover picture. The upper lip shows profound ulceration that partially breaks the mucosa leaving a thin rim on the lower area.
1966[F26]	The image shows different stages of scarring processes. There is some transversal scarring and thickening of the lip mucosa. Thin vertical fissures can also be seen on the lower lip.
1970[F27]	In this color photo, his upper lip shows thickening of the mucosa and scar tissue overgrowth resulting in permanent deformation of the central part of his mouth.

Photos References

Fig. 1 https://collections.louisarmstronghouse.org/asset-detail/1045910
Fig. 2 https://digitallibrary.tulane.edu/islandora/object/tulane:14147
Fig. 3 https://collections.louisarmstronghouse.org/asset-detail/1096380
Fig. 4 https://digitallibrary.tulane.edu/islandora/object/tulane%3A14222
Fig. 5 https://collections.louisarmstronghouse.org/asset-detail/1045276
Fig. 6 https://collections.louisarmstronghouse.org/asset-detail/1033677
Fig. 7 https://collections.louisarmstronghouse.org/asset-detail/1039354
Fig. 8 https://collections.louisarmstronghouse.org/asset-detail/1047125
Fig. 9 https://collections.louisarmstronghouse.org/asset-detail/1047130
Fig. 10 https://collections.louisarmstronghouse.org/asset-detail/1047136
Fig. 11 https://collections.louisarmstronghouse.org/asset-detail/1047199
Fig. 12 https://collections.louisarmstronghouse.org/asset-detail/1038524
Fig. 13 https://collections.louisarmstronghouse.org/asset-detail/1045952
Fig. 14 https://louisianadigitallibrary.org/islandora/object/lsm-jaz%3A1554
Fig. 15 https://louisianadigitallibrary.org/islandora/object/lsm-jaz%3A700
Fig. 16 https://collections.louisarmstronghouse.org/asset-detail/1038534
Fig. 17 https://collections.louisarmstronghouse.org/asset-detail/1044897
Fig. 18 https://collections.louisarmstronghouse.org/asset-detail/1045397
Fig. 19 https://collections.louisarmstronghouse.org/asset-detail/1037954
Fig. 20 https://collections.louisarmstronghouse.org/asset-detail/1047236
Fig. 21 https://collections.louisarmstronghouse.org/asset-detail/1047238
Fig. 22 https://collections.louisarmstronghouse.org/asset-detail/1180268
Fig. 23 https://collections.louisarmstronghouse.org/asset-detail/1035878
Fig. 24 https://louisianadigitallibrary.org/islandora/object/lsm-jaz%3A202
Fig. 25 https://collections.louisarmstronghouse.org/asset-detail/1197930
Fig. 26 https://collections.louisarmstronghouse.org/asset-detail/1095869
Fig. 27 https://collections.louisarmstronghouse.org/asset-detail/1047408
Fig. 28 https://collections.louisarmstronghouse.org/asset-detail/1036320
Fig. 29 https://collections.louisarmstronghouse.org/asset-detail/1038572

There is considerable consensus for the fact that he pressed the mouthpiece very hard against the lips, especially in the upper register.[5,11,47] Additionally, he created his distinctive vibrato by shaking his hand instead of merely rocking his fingers or flexing his jaw.[11,47]

2. Louis Armstrong's playing schedule

Armstrong wanted to be permanently active.[13] There are many reports about his working regimen and they all describe a very busy schedule. Some days he played five shows[48] or had up to seven performances,[44,47] normally performing 300 nights a year,[17] and at age 64 he still gave concerts lasting 3 hours.[31]

3. Visible lip changes

It is notorious that Louis Armstrong's upper lip changed significantly during his career. However, the main information is from an external point of view. There is not much information about the modifications to the inner part. Table I describes the dermatological changes that can be observed in the selected photographs.

4. Description of his lip problems

When looking for information about Armstrong's lip problems we found several reports, but most of them do not come from a reliable medical source. They are just descriptions of various symptoms. There are three references mentioning a specific medical condition. During 1935, some newspapers talked about lip infection.[28,29,48] In the same way, Armstrong's *New York Times* obituary article describes his lip problems as "*chronic leukoplakia.*"[24] It is hard to believe that both these reports come from a direct medical source. The only reliable description is in an interview with Dr. Gary Zucker, who was Louis Armstrong's personal physician during the last years of his life. He reported that: "*by the time I saw it [his lip], it had already had numerous cracks and ulcerations in the area and in the process of healing it was replaced by scar.*"[5]

On the other hand, there are many references to "*split lip.*" Armstrong himself used this expression. For instance, in a 1966 interview, he explained: "*I split my lip so bad in Memphis, there's meat still missing. Happened many times. Awful. Blood run all down my shirt.*"[6] It is difficult to know if this was a cut in his lip skin, a fissure in a scarred area, a bleeding ulcer of the mucosa, or a blister that burst.

All the other information describes Armstrong's symptoms. These results have been organized into chronological periods.

Childhood and adolescence—When he was an intern at Waif's Home, he participated in parades and parties to earn some money. Many of these performances involved marching for many hours. Most days he ended up not being able to play anymore, and with his "lips lit up" and "split wide open."[6,38]

1931—The first important lip damage with a specific date occurred in Chicago. His jazz group was playing at a nightclub every night. At closing time, the band started to pack up, but a few men there wanted the band to keep playing. The club owner knew these men were mobsters and so told the band to keep playing. After another set, the band began to pack up again. One of the mobsters put a gun to Louis's head and told him to play higher and higher until Armstrong's lip burst open.[23]

1932—One of the most often mentioned events happened on New Year's Eve 1932. In Baltimore, after five performances, two radio broadcasts, and rehearsals of about 4 hours, Louis had his lips completely darkened, red, and swollen. Still, he played the concert-dance with all his soul. While playing *Them There Eyes*, when he ascended to the high F, he blew blood from his trumpet. The audience, seeing him, shuddered and began to applaud. He wiped the blood with his tongue, laughed, bowed, and laughed again.[11,44,46] *Melody Maker*, the most important musical magazine at that time, reported this lip problem on January 6 and demanded the trumpeter be allowed to rest.[26] However, he continued with his extremely busy agenda and in July landed in England for his first European tour.

1933—He returned to Europe and lived there from July 1933 to January 1935. During this period he again split his lip several times.[36]

1934—The gruelling months he had spent on tour took their toll on his lip. George James recalled one night in Philadelphia with Armstrong when he was unable to play at all: "*First we noticed a blister on his chop, and every day it got worse until he couldn't put his mouthpiece on it.*"[11] He first cancelled a week of performances at London's Holborn Empire. Armstrong later explained why: "*In England on the stage [. . .] my lip split, blood all down in my tuxedo shirt, nobody knew it.*"[11] He stopped performing for the next 4 months, the first time he did so in 15 years of constant playing. In November, he did his first public concert again. This was followed by concerts in Belgium, France, Italy, and Switzerland where he again had lip problems. The North African concerts where cancelled and returned to America.[45]

1935—He took a rest period in Chicago from January of 1935 to May.[38] Dr. Gordon filed a letter for him certifying that "*the lip was in need of cauterization and rest*" and added that this might take months to heal.[27] The *New York Amsterdam News* and *Melody Maker* stated in April that "*at present, Satchmo's lip is in a disastrous condition, and unless sufficient precautions are taken by him there is every danger of cancer setting in.*"[28,29] In July, he was performing again, including 9 nights in New Orleans followed by new recordings and gigs in many cities, although he was using a less spectacular style of playing and reducing trumpet playing time in favor of more singing.[11,45]

1943—He wrote to drummer Zutty Singleton: "*My lips are screwed up, I would like to cancel concerts, but in this business, to cancel, you have to be dead!.*"[45]

1956—Hamblet, a newspaper reporter who interviewed Armstrong personally, described Armstrong's lip in this way: "*The lips are enormous; the upper one has a permanent soft*

cyst in the middle, like a half-healed sore on an overworked Spanish donkey."[21]

1959—J.L. Collier, a biographer, reported that "*during a backstage meeting with trombonist Marshall Brown in 1959, Armstrong received the suggestion that he should go to a doctor and receive proper treatment for his lips instead of relying on home remedies, but he did not get around to doing it until the final years of his life, by which point his health was failing and doctors considered surgery too risky.*"[5]

5. Lip care

Armstrong basically treated his lips with ice, vitamins, fat, witch hazel, spirits of nitrate, and, mostly, his beloved Ansatz Crême (Figs 28, 29).[5,15,16,18,20,21,36,37] Louis thought that this cream contained a secret ingredient and, as he was a great believer in magical remedies, used it all his life.[16,36]

There are many references that explain how Louis Armstrong cut the scar tissue himself, in the inner upper lip, with a razor blade, from time to time. All these references seem to come from the Collier interview with the trombone player Marshall Brown. He explained: "*Where the lip rubs against the teeth a substance forms which could be called callus tissue. This had been a constant problem for Louis Armstrong throughout his lifetime, right from the beginning. He told me that he always had that problem, and once every four of five years he would have to remove it, [. . .] he would literally take a razor blade, and remove it himself.*"[5] There is a second source about the same procedure, a personal report in *Trumpet Herald Forum* from the trumpet player John Bennett: "*Once, when I was in high school, Louis played a concert in our auditorium and I happened to be backstage. Louis was sitting at a table cutting callouses off his upper lip with a razor blade. He played the concert on bloody red chops! He sounded great though.*"[14]

DISCUSSION

Analysis of the documentation and the photographs of Louis Armstrong confirm that the trumpeter had important lip problems during his entire career. Although the lack of ultrasonographic and histomorphologic information of his lips make it impossible to be categorical in some of the aspects analyzed, we think there are several questions that can be almost completely answered.

What type of injury did Armstrong have?

There are many references to his lip problems. Most of them do not quote the source, so it is difficult to give them full credit. All of them talk about dermatological problems with his lips. Fortunately, there is a medical opinion that accurately describes the situation. It is a short report by his personal physician, Gary Zucker, which is very valuable because it confirms that Armstrong had repetitive cracks and ulcerations on his lips that produced scar tissue which again cracked and formed ulcers.[5] Images from 1952 (Fig. 18) and 1955 (Fig. 20) illustrate these lip changes very well. This fibrous hypertrophic tissue, produced by repetitive microtrauma, made playing difficult and forced Armstrong to remove it from time to time.[5,14]

From this information we can also deduce that when Armstrong talks about "*split lip*" he was suffering from cracking of the mucosa with small tears that lead to deeper alteration of the mucosa (fissures), which extended into the deeper layers. As the lip is a highly irrigated area, any wound will easily cause bleeding. This happened to him numerous times, even in public, with blood coming out of the trumpet,[44] on his face,[46] and on his clothes.[11] Armstrong "split" his lip innumerable times, from his teens, just a few years after starting to play.[6,11,38,39]

Which part of the lip was affected?

Although there are some references that are clear, most of them are ambiguous and fail to clarify whether the injuries were in the inner or outer lip mucosa or on the upper or lower lip. The photos seem to indicate that the external mucosa (mainly of the upper lip) was affected, but there is no clear information about the inner part. It is hard to assume that it was not affected in any way as it is more fragile and directly in contact with the teeth. One of the most recognized Louis Armstrong biographers, Collier specifically mentions the inner part of the lip.[5] Therefore, although we do not have any photographs where we can analyse the inner mucosa, it seems reasonable to assume that this was the most affected zone and the one that caused him the most problems.

For how long did he stop playing during the 30s?

Planas stated that Armstrong's lip injury forced him to stop playing the trumpet for a year.[1] But this is not what we found in the literature. The longest period without playing was during the years 1934 and 1935. When he was in Europe, he stopped from May to October 1934 (4 months). He did studio recordings in Paris in October and public concerts in Belgium, France, Switzerland, and Italy in November. His last concert was in Turin. After this he took a new period off from January to May 1935 (4 months again).[45] It is also important to mention that it is not clear whether the real cause of this second break was his lips. His lip injury could be used as an excuse to hide other problems, such as his wife filing for divorce, a trial for breaking a contract, and lawsuits involving his manager, John Collins (who had strong connections with the mafia).[27,43,48] To reinforce this possibility, many years later, in 1965, Armstrong explained: "*When I come back to America I didn't blow the horn for about six months. I'd thrown it out of my mind. Couldn't go no further with all them shysters wiping at me.*"[11]

What were the causes?

It is not the scope of this paper to try to understand the causes of these injuries. But, as the kind of problems that affected him and, most importantly, their severity are not

reported in the literature,[8] we will review it in short. We trust that future studies will be able to provide more information and analysis on this topic.

So, why did Armstrong have them? We do not have reliable information about any baseline medical condition or physical characteristics that could make Armstrong prone to such problems. Even though we cannot rule out other factors, it seems clear from our review that the main cause should be the way he played. His playing schedule was, from the very beginning to the end of his career, very demanding. Most trumpet players play every day, but it is very uncommon to have daily concerts like Armstrong. Most days, he had several performances, rehearsals, and recordings, almost without any day off. To a certain extent, the human body can adapt to work loads and those exercised areas of the body not only adapt but can even improve their potential. But Armstrong pushed the limits of his lips beyond bounds, and the way he played also had considerable impact. The fact that he liked to play very high forte notes, the pressure he used to put on his lips, the way he did the vibrato (shaking his hand), the low placement of the mouthpiece, and the narrow rim used probably also contributed to stressing his lips.[5,11,47] It is not clear whether he also twisted the trumpet (and thus the lips) to achieve high notes. There are reports that he used this technique when young, but there is no mention of it later.[23]

There is considerable consensus about the fact that he used a large amount of pressure on his lips. Repeated contact and pressure can injure first the mucosa and then the fat under the skin or the small blood vessels that run through it. This reduced mucosal irrigation of the lips will cause tissue to thin at the pressure point of the rim.[49] From Louis Armstrong's photographs, this appears to be what happened in his case. The combination of lip pressure and the extremely demanding work routine had visible effects on his lips.

Although he had lip problems all throughout his career, after the problems he had in 1935, he made some changes to his playing style, both to take care of his lips as well as to increase his popularity among white audiences. He shortened his solos and did not make excessive use of high notes.[33] He also followed the advice given by Joe Glaser, his manager, to become an entertainer so he sang and spoke more and played the trumpet less.[11] This was a commercial strategy but also a reduction of the load on his lips. Probably these changes, despite his continuing to have an extremely busy agenda, touring, and doing long concerts, allowed his lips to hold out until his death.

Did he have a ruptured orbicularis oris muscle?

One of the main purposes of this study was to elucidate whether Louis Armstrong had orbicularis oris rupture (Satchmo's syndrome) or not. From our point of view, there is no evidence in the reviewed material that he had this injury. On the contrary, all the information points to a severe dermatological problem, probably affecting both lips, but more intensively the inner mucosa of the upper lip. If there had been any muscular damage, this would most probably be the result of pressure, ischemia, and the repetitive injury and repair process rather than the direct result of excessive strain on the muscle.

An orbicularis oris muscle rupture would manifest itself as a sharp pain, the main symptom, and loss of high register, swelling, and lack of endurance. Armstrong never complained of these symptoms, and existing recordings show that he was able to play high notes, even during the 30s and until the last days of his life, playing concerts lasting more than 3 hours.

What about Satchmo's syndrome?

Should we conclude that it is highly unlikely that Louis Armstrong had Satchmo's syndrome and that the characteristics of his lip problems were a dermatological injury? And is it reasonable to maintain this name for orbicularis oris rupture?

We think, as a general concept, that it is a good idea to name diseases after the famous musicians who suffered from them. It is a good way to make the musician's suffering visible and more comprehensible. But, after this review, we should conclude that using this eponymous for this injury does not only make little sense, but also it creates confusion. For this reason, we do not believe it justified or desirable to continue using his name, and we propose no longer calling rupture of the orbicularis oris muscle Satchmo's syndrome.

Conclusion

From the material reviewed we conclude that Louis Armstrong overused his lips during his entire career. He played for many hours a day, with a multitude of concerts (almost every night), recordings, and radio sessions. Probably, the way he played (with very high notes, using pressure on the lips to achieve them, and hand vibrato) and the characteristics of the mouthpiece and embouchure he used, also had a certain importance. This damaged his lips, mostly the inner and the outer part of the upper lip. This first created redness, erosions, cracks, and fissures. Many times, it ended up producing bleeding of the affected area while playing. These lesions evolved into ulcers that, after healing, became scar tissue that made the mucosa thicker and stiffer, making the lip vibrate with more difficulty and forcing him to increase the tension and pressure in the area to be able to achieve the desired notes and sound. This created a vicious cycle where the scar tissue led to additional problems. There was also a thinning of the lip, probably due to soft tissue atrophy, secondary to blood vessel damage.

In the inner part of the lip, the scar tissue needed to be removed from time to time to allow him to play. Due to his cultural background, he always relied on traditional remedies and, until his latter years—when he need medical attention due to his heart, lung, kidney, and liver prob-

lems—he rarely went to the doctor. Therefore, he treated his lips with home remedies and creams and, every 4–5 years, excision of the scar tissue of the inner mucosa, which he did himself, using a razor blade.

We have not found any reference to symptoms compatible with orbicularis oris muscle rupture, except for having to stop playing for some periods. The loss of the high register notes, the lack of resistance, or the impoverishment of the sound, characteristic of this injury, were not among those suffered by Armstrong. His recordings from the 1940s, 1950s, and 1960s are good proof of this.

As it seems unlikely that Louis Armstrong had orbicularis oris rupture and the injury that characterized his important lip problems was a dermatological condition namely mucosa fibromatous hyperplasia due to chronic microtrauma, we would like to recommend that the scientific community no longer use the term "Satchmo's syndrome" to describe orbicularis oris rupture in musicians.

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