

Stockholm August 30, 2016

Vice-Chancellor Karin Dahlman-Wright
Karolinska Institutet

Notification of Research Misconduct

RE: Scientific Poster Publication: First in Man Synthetic Nanofiber Trachea. Jed Johnson*, Philipp Jungebluth#, Paolo Macchiarini# *Nanofiber Solutions LLC, Columbus, Ohio, #Karolinska Institutet, Stockholm, Sweden, Aug 2012 (1).

This petition concerns a scientific publication in the form of a poster that was presented and awarded at the Nanotechnology for Defence Conference in Las Vegas, USA, on Aug 8, 2012 (2, 3).


This publication contains evidence of scientific misconduct, data manipulation and falsification on the part of Drs. Johnson (JJ), Jungebluth (PJ) and Macchiarini (PM). The publication is significant because not only does it present falsified data concerning a specific patient but also demonstrates the close affiliation to commercial interests with the ambition of generating investment (see reference list with comments, pages 13-17).



First in Man Synthetic Nanofiber Trachea

Jed Johnson*, Philipp Jungebluth#, Paolo Macchiarini#

*Nanofiber Solutions LLC, Columbus, Ohio
#Karolinska Institutet, Stockholm, Sweden



ABSTRACT

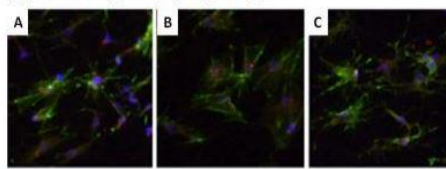
We have developed the first in the world synthetic nanofiber trachea that is combined with autologous stem cells and implanted into the patient to replace the damaged native trachea. Small polymer nanofibers were electrospun to form a tracheal prosthesis that was modeled from a CT scan of the patient. This nanofiber graft was then combined with bone marrow derived mononuclear cells from the patient and cultured two days *in vitro* before implantation into the patient. The autologous stem cells attached and proliferated on the highly porous and highly biocompatible nanofiber graft *in vitro* and the body was used as a bioreactor to differentiate the cells and **create a fully functional trachea**. Three surgeries have taken place to date, one in Sweden and two in Russia, **with evidence of vascularization and functional epithelium one day post surgery**. This synthetic nanofiber platform technology is currently being applied to replace other organs such as blood vessels, skin and small intestines and is changing the future of regenerative medicine and patient care.

RESULTS - MICROSTRUCTURE

Scanning electron microscopy reveals the fibrous structure of native decellularized trachea (A) and the similarity with our nanofiber scaffold made from a blend of polyethylene terephthalate and polyurethane (B). A mesenchymal stem cell is shown growing on the nanofiber scaffold (C) and wrapping around individual fibers.

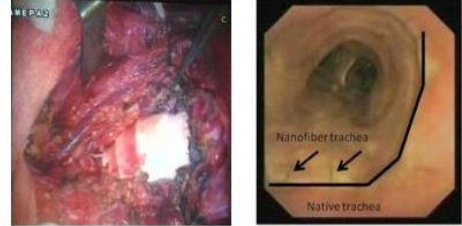


Fluorescence microscopy of mesenchymal stem cells cultured on the nanofiber scaffold with cells labeled for DNA (blue), actin (green) and CD90 (red) after 50 hrs of culture. Fibers were coated with collagen I (A), fibronectin (B) and poly-D-lysine (C).

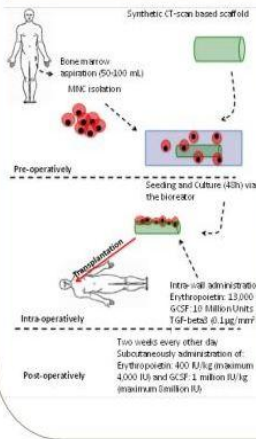


RESULTS - POST SURGERY

Photograph of tracheal graft sutured into position (left) and a representative bronchoscopy 3 days after the surgery (right). **Notice the vascularization and tissue in-growth of the implanted synthetic trachea and lack of inflammatory response from the surrounding tissue demonstrating biocompatibility and acceptance of the nanofiber scaffold.**




MATERIALS AND METHODS



Autologous mononuclear cells (MNCs) were obtained 2 days before transplantation from a bone marrow aspirate through density gradient separation. Analyses of white blood cells, mononuclear cells, CD34+ cells, viability, colony forming unit-fibroblast, flow cytometry characterization, and sterility were done. Cells were resuspended in low-glucose DMEM and seeded onto the synthetic graft by incubation of the construct in a bioreactor at 37°C for 48 hrs before transplantation. The airway construct was transported to the operating theater and conditioned with growth and regenerative factors; recombinant human transforming growth factor-β3, granulocyte colony stimulating factor filgrastim (G-CSF), and epoetin beta (analogous synthetic of Erythropoietin). Sections of the graft were assessed by scanning electron, fluorescence, bright field, and confocal microscopy.

RESULTS - MACROSTRUCTURE

Collage image of synthetic nanofiber tracheas after production (left) and after 2 days incubation with autologous stem cells immediately before implantation in the operating theater (right).



CONCLUSIONS - FUTURE WORK

Using synthetic nanofiber scaffolds to create artificial organs serves as a novel solution to the shortage of organ donations and problems associated with graft versus host disease. Seeding these scaffolds with appropriate biological sources, such as patient derived stem cells, **results in fully functional organs** that bypass organ availability and host compatibility issues. Nanofiber Solutions has created three artificial tracheas made from synthetic nanofibers and implanted into patients suffering from tracheal defects, but these events only begin to reveal the potential of nanofibers to transform the field of regenerative medicine and dramatically improve patient care. Future work involves tissue engineering of blood vessels, small intestines and skin.

REFERENCES

1. Bader, A. and P. Macchiarini (2010). "Moving towards in situ tracheal regeneration: the bionic tissue engineered transplantation approach." *Journal of Cellular and Molecular Medicine* **14**(7): 1877-1889.
2. Jungebluth, P., E. Alici, et al. (2011). "Tracheobronchial transplantation with a stem-cell-seeded bioartificial nanocomposite: a proof-of-concept study." *Lancet* **378**(9808): 1997-2004.
3. Jungebluth, P., G. Moll, et al. (2012). "Tissue-Engineered Airway: A Regenerative Solution." *Clinical Pharmacology & Therapeutics* **91**(1): 81-93.
4. Jungebluth, P., A. Bader, et al. (2012). "The concept of in vivo airway tissue engineering." *Biomaterials* **33**(17): 4319-4326.

Exhibit: Poster publication "First in Man Synthetic Nanofiber Trachea". Misleading and falsified data are highlighted in yellow.

In order to review the presented data it is necessary to determine the time point of the publication of the poster as well as determining the identification of the patient.

In the text of the Abstract the following sentence can be found: *"Three surgeries have taken place to date, one in Sweden and two in Russia"* which implies the text was created *after* the two Russian patients were transplanted in June of 2012; Julia Tuulik on Jun 19, 2012 and Alexander Zozulya on Jun 21, 2012 (4, 5).

The poster is according to the document characteristics created on Aug. 2, 2012 (6), 6 days before being presented on Aug 8, 2012 (2). Since the Russian patients were number 2 and 3 in the series of patients who received a synthetic airway made by the company Nanofiber Solutions then the *"first in man"* must be the *"one in Sweden"*. By comparing to a number of officially published pictures and texts the identity of the patient can be determined to be the second patient who received a synthetic tracheal scaffold at Karolinska University Hospital in Sweden and underwent the procedure on Nov 17, 2011 (7, 8, 9, 10, 11, 12, 13, 14).

In the following sections the authors conclude the following:

ABSTRACT

*"The autologous stem cells attached and proliferated on the highly porous and highly biocompatible nanofiber graft in vitro and the body was used as a bioreactor **to differentiate the cells and create a fully functional trachea.** Three surgeries have taken place to date, one in Sweden and two in Russia, with evidence of vascularization and functional epithelium one day post surgery."*

RESULTS – POST SURGERY

*"Photograph of tracheal graft sutured into position (left) and **a representative bronchoscopy 3 days after the surgery (right).** Notice the vascularization and tissue in-growth of the implanted **synthetic trachea** and lack of inflammatory response from the surrounding tissue demonstrating biocompatibility and acceptance of the nanofiber scaffold."*

CONCLUSIONS – FUTURE WORK

*"Using synthetic nanofiber scaffolds to create artificial organs serves as a novel solution to the shortage of organ donations and problems associated with graft versus host disease. **Seeding these scaffolds** with appropriate biological sources, such as patient derived stem cells, **results in fully functional organs that bypass organ availability and host compatibility issues.**"*

Comments to portions above:

1. *"...to differentiate the cells and create a fully functional trachea."*

The statement is false. No full or partial functional trachea was formed in the synthetic scaffold. The following evidence disavows the above statement.

- a. Detailed bronchoscopy report by senior ENT-physician on Jan 10, 2012, 8 weeks after implantation, states (Appendix 1):

"Exfoliation of the outer layer of the graft. Sutures are clearly visible" [at the upper and both distal anastomotic sites].

No verification or description of any presence or signs of tissue or epithelial ingrowth in the scaffold, which was of main interest when performing the bronchoscopy. Clearly visible sutures verify no tissue ingrowth from the anastomosis sites.

- b. Biopsy report at 8 weeks, Jan 10, 2012 states (Appendix 2):

“The material contains mainly of graft parts surrounded with egg white precipitation [N.B. pathological non-vascular finding not equivalent to any tissue ingrowth or cellular lining] focally containing large amounts of leucocytes. No coherent tissue can be detected. Graft material with admixture of inflammatory cells and minimal flakes of squamous epithelium type.”

- c. Bronchoscopy film at 8 weeks, Jan 10, 2012 (separately attached):

The absence of any tissue ingrowth or vascularization (completely dysfunctional synthetic scaffold) is verified by the performed bronchoscopy (figures 1-12, pages 7-12 and bronchoscopy film Jan 10, 2012). PM partook in the procedure and thereby was aware of the pathological findings 8 weeks after the implantation (Appendix 1).

2. *“...with evidence of vascularization and functional epithelium one day post surgery.”*

In the patient’s medical records there exists no formal procedural report of the bronchoscopy registered on day 1, which is a standard routine if such an intervention is performed. Instead there is a mention of a bronchoscopy performed on Nov 18, 2011, which is referred to in passing in one single sentence in the intensive care consultant’s daily notes (Appendix 3):

“Bronchoscopy by Dr Kuylenstierna shows very good status.”

No text, biopsy, photo or film is documented in the patient’s medical records that supports the author’s conclusions found in the poster text.

The statement is false and unrealistic. The idea that a plastic tube of several centimetres in length could be vascularized and develop a functional airway epithelium (which necessitates the formation of a submucosa and basal membrane) in 24 hours is bizarre and beyond ridiculous. We have in previous petitions (15) criticized PM because he made similarly fantastic claims that this process could transpire with in 7 days after implantation of a synthetic trachea an unlikely scenario that even PM has in earlier publications described as impossible even in much smaller grafts than what a plastic tube in the size of a human trachea implies (16):

“...It is well known that a tissue-engineered cellular graft of larger than 0.8 mm in diameter needs vascularization to maintain viability after implantation into the host. However, the revascularization process usually begins within the first 2 weeks and flourishes within the eighth week of implantation. One might therefore speculate that an implantation time of 1 week is almost certainly too short for sufficient revascularization of small-diameter grafts.”

3. *“...a representative bronchoscopy 3 days after the surgery (right). Notice the vascularization and tissue in-growth of the implanted synthetic trachea.”*

In the patient’s medical records there is no formal procedural note pertaining to a bronchoscopic examination but there is a brief mention in passing in the daily notes by the intensive care consultant from Nov 20, 2011 that states in one sentence (Appendix 4):

“...bronchoscopy by Dr Macchiarini who verify slime/blood clot corresponding bronchus to right upper lobe.”

No text, biopsy, photo or film documentation can be found in the medical record which supports the authors conclusions of vascularization and tissue in-growth of the implanted

synthetic trachea had occurred at this time point. This claim is disproven by a bronchoscopy performed eleven days after implantation:

- a. Detailed bronchoscopy report by senior ENT-physician on Nov 28, 2012, 11 days after implantation, states (Appendix 5):

*“The implant is patent and **there are no signs of tissue ingrowth yet.**”*

- b. Furthermore, a bronchoscopy by a senior ENT-physician on Dec 6, 2011, **19 days** after implantation did not demonstrate any signs of vascularization of the scaffold. A bronchoscopy 8 weeks after implantation disavows the claim of vascularization (point 1c above) Jan 10, 2012.

The claims of vascularization are false and misleading. As commented earlier it is biologically impossible for a plastic tube of several centimetres in length to develop a fully functional respiratory epithelium after only three days. This also implies that the fully vascularized respiratory epithelium would then suddenly have disappeared at day 11 and not reappeared on day 19 or 8 weeks after implantation which is bizarre and won't be discussed further.

4. *“Seeding these scaffolds...results in fully functional organs that bypass organ availability and host compatibility issues.”*

The claim is false and based on falsification of data from the patient's medical records and disavowed by the bronchoscopic recording from Jan 10, 2012. No signs of a partial or complete vascularization or epithelisation (“tissue ingrowth”) could be found. What was found was the complete opposite. Signs of a dysfunctional synthetic scaffold without any signs of vascularization, tissue ingrowth or functional respiratory epithelium are demonstrated by the series of pictures taken from the bronchoscopy taken on Jan 10, 2012, 8 weeks after implantation (bronchoscopic figures 1-12, pages 7-12, bronchoscopic film Jan 10, 2012).

It needs to be emphasized that PM partook in that examination (Appendix 1) and thereby was fully aware of the pathological findings when the poster was produced and presented several months later in Aug 2012 (2, 6).

Furthermore the authors have not supplied any biopsy data from the tracheal scaffold before implantation. This would have shown if the plastic surface was covered with any cellular layer that after implantation could have possibly prevented immediate colonisation by pathogens found in ambient air. This is analogous to the pre-operative biopsies taken from the first patient transplanted five months earlier (Jun 9, 2011) (17) where all biopsies (7 out of 7 biopsy samples from different parts of the scaffold) showed that the tracheal scaffold was not covered with any cellular layer and thereby immediately exposed to ambient air (implantation of a “nude” plastic tube was by these biopsies verified) (Appendices 6, 7) This implies that it must be suspected that this patient's scaffold also was in all likelihood immediately contaminated and colonised. Such an (chronic) infection can only be treated by removal of the foreign material. Even though PM could not have been unaware of this, PM still went on to implant a new synthetic scaffold in the next patient putting also that individual in a very dire predicament.

PM has in previous claims, among others to the external reviewer Prof Gerdin, purported that he had not been given access to these patients' medical files and that he due to language barriers was unaware of the suffering and morbidity that they have endured (18, page 2, section 4-5):

“I had not (and indeed could not due to the language barrier)”, “I and my research team had no routine access to the clinical healthcare records.”, “The original written evidence

documenting the patients' condition and results of tests at every stage are not only written in Swedish or Icelandic (two languages I have no knowledge of)."

This is an absurd attempt to avoid responsibility. In the case of the patient presented in the poster above PM was present and active in the decision-making in the clinic (Appendix 3 section planning) and therefore was fully informed of all the crucial clinical circumstances and findings. According to the medical files PM was present in the clinic on the following dates: October 21, November 17, 18, 19, 20, 21, 23, 27, 28, December 1, 2, 6, 9, 16, 2011 as well as January 6, 7, 10, 2012.

In conclusion PM was thereby completely aware of the state of the patient's airway when the poster was composed and presented five months after the patient died on March 5, 2012.

Besides the interest that PM had personally in portraying the method as a success, a strong commercial interest was directly conjoined to the poster publication.

First of all we wish to point out that the first author Dr. Jed Johnson is Chief Technology Officer (CTO) at the company Nanofiber Solutions that synthesized the tracheal scaffold described in the poster. The falsified data that was presented in this poster publication has been employed in several attempts to procure investors to the company. Some examples of the strong connection between industry and the experimental procedures are the following (19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29):

- a. *"The company estimates that the nascent market for regenerative medicine devices could potentially grow to hundreds of millions of dollars annually."*
Dec 1, 2011 Harvard Bioscience.
- b. *"...after the success and attention it's enjoyed since the trachea transplant, Nanofiber Solutions is now looking for partner companies to help it grow its business in artificial organs, which represents a larger market than selling to research institutions. Partner companies would supply regulatory or clinical expertise, or investment capital and Nanofiber Solutions would provide the technology... Nanofiber Solutions is hoping to close a series A round of investment between \$2 million and \$5 million this summer."*
Jan 23, 2012, Jed Johnson, CTO, Nanofiber Solutions.
- c. *"Collaboration between Nanofiber Solutions and the Karolinska Institutet produces first synthetic laryngotracheal implants seeded with the patient's stem cells to be successfully transplanted into human patients in Russia... We are proud to work side-by-side with Dr. Macchiarini and his team as they help define this new world of stem cell seeded synthetic transplants."*
Jun 26, 2012, Ross Kayuha, CEO, Nanofiber Solutions CEO.
- d. *"We actively seek out different types of partners... the clinical partners I mentioned... to the Karolinska Institute... so a broad spectrum and various stages of development from small animals, to large animals to human applications... I look forward to talking with you... We are actively looking for seed investments as well as other types of strategic partners..."*
Oct 24, 2013, Jed Johnson, CTO, Nanofiber Solutions.
- e. *"Nanofiber Solutions manufactures the only nanofiber tracheal implant in the world. Our implant has been successfully used in four surgeries in Stockholm, Sweden and Krasnodar, Russia and our first U.S. surgery is planned for fall 2012. The knowledge gained from our stem cell work and our ongoing surgeries is being used to develop our first commercial Tissue Engineering products... Nanofiber Solutions™ offers the only translational 3D cell culture products on the market backed by a 100% money back guarantee."*
Nov 25, 2012, Nanofiber Solutions.

f. *"I have a big investment in the company... is by far the biggest single asset in my family's wealth... putting my money where my mouth is... I own about 5% of the shares... I own additionally 9% of the company... Bioreactor and scaffold are sold as a single unit... 100.000 USD per procedure..."*

Nov 24, 2013, David Green, CEO HARVARD APPARTUS Regenerative Technology (HART).

Conclusion

This poster publication is one in a long line of publications by PM et al. that presents falsified data and whose contents PM has the overriding responsibility for, as well as the patients who have been subjected to the procedures described. We are of the opinion that this poster is a further example of research misconduct and request that Karolinska Institutet investigate and notify the corresponding publishing organisations.

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Bronchoscopic images from the bronchoscopy performed on Jan 10, 2012, 8 weeks after implantation of synthetic tracheal prosthesis. PM participated at the intervention.

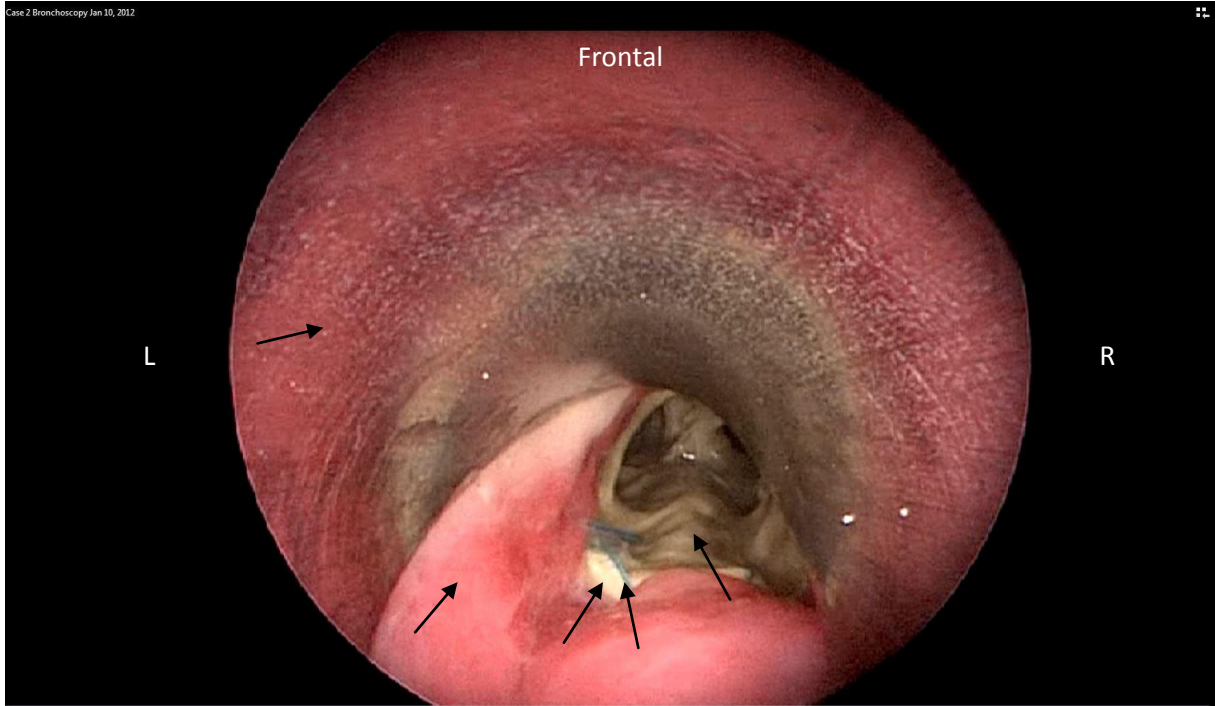


Figure 1. View from the upper proximal part of the native trachea (pink colored) down towards the synthetic scaffold (white-yellowish). Arrows from left to right: Inner wall of the bronchoscope, native normal tracheal (pink) vascularized tissue, proximal (upper) edge of the synthetic scaffold, nude (tissue uncovered) blue sutures, proximal part of nude synthetic scaffold without any covering epithelium, vascularization or tissue ingrowth.

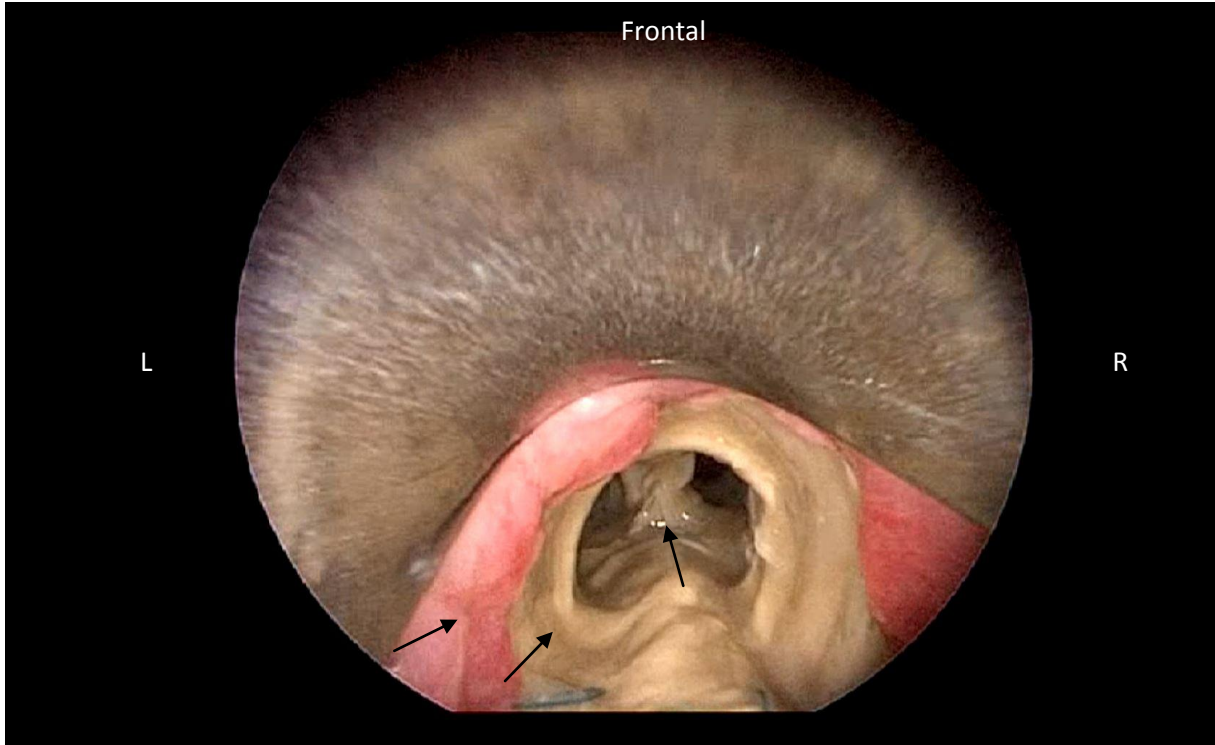


Figure 2. View advanced in distal direction. Arrows from left to right: native tracheal (pink) vascularized tissue, nude synthetic scaffold (white-yellowish) without any covering epithelium, vascularization or tissue ingrowth, synthetic carina with left and right synthetic main bronchus departures.

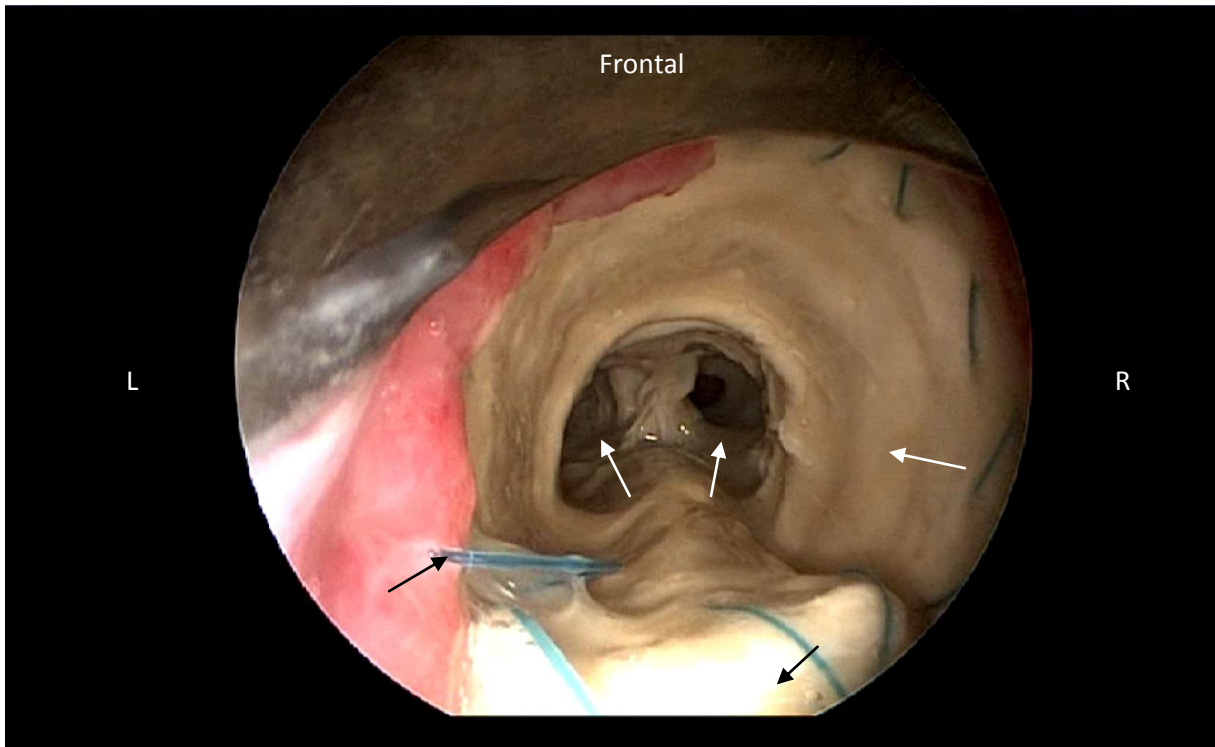


Figure 3. View into the synthetic scaffold. Arrows from left to right: nude (tissue uncovered) blue sutures, left and right synthetic main bronchus departures (white arrows), proximal (upper) edge of the synthetic scaffold, inner wall of synthetic scaffold (yellowish-white) without any covering epithelium, vascularization or tissue ingrowth.

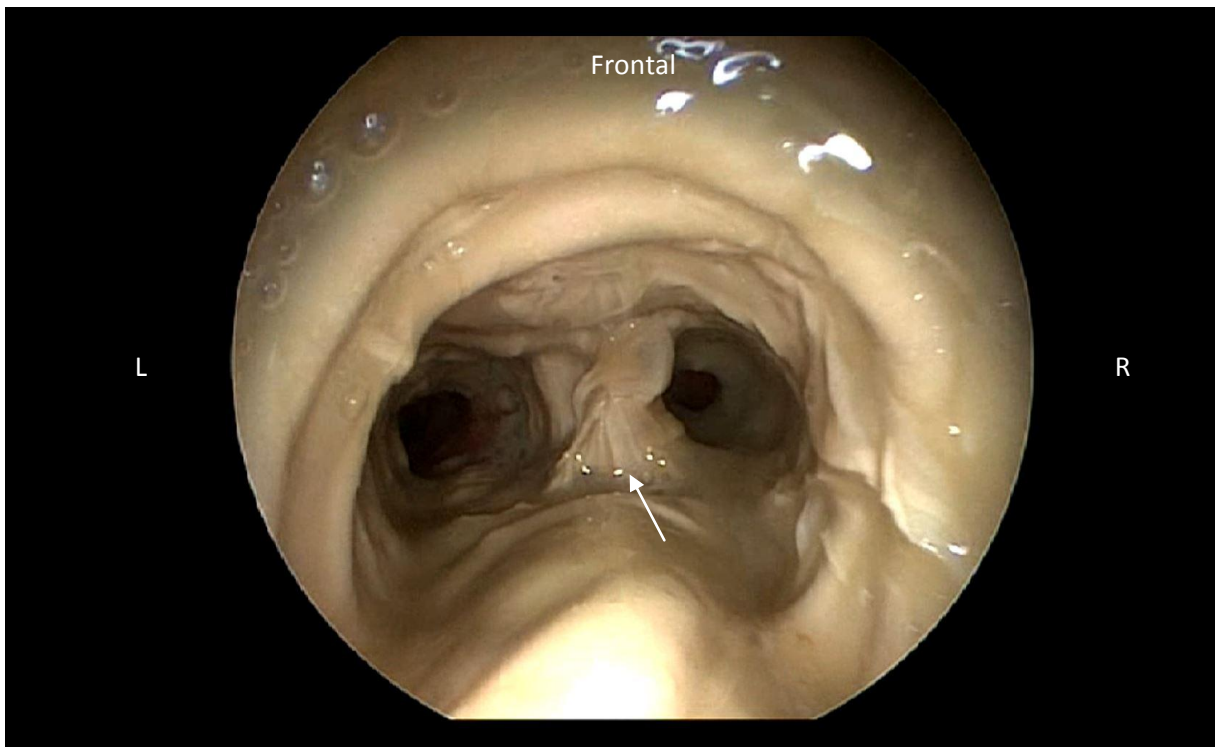


Figure 4. View into dysfunctional synthetic scaffold (yellowish-white) without any covering epithelium, vascularization or tissue ingrowth. The exfoliation (arrow) on the inner scaffold wall is an "egg white precipitation" resulting from protein leakage into the synthetic airway and contains of proteins who lost its solubility due to environmental changes in the non-biological (synthetic) environment, precipitating forming a "paper towel" like structure, a pathological (even if principally a normal chemical reaction) in this location and has nothing to do with establishment of a normal airway epithelium and is

not a type of cellular layer (see Biopsy report Jan 10, 2012). Compare the non-vascularized and non-tissue covered (non-living) scaffold with figure 5 showing the normal vascularized inner wall of a healthy living native trachea.

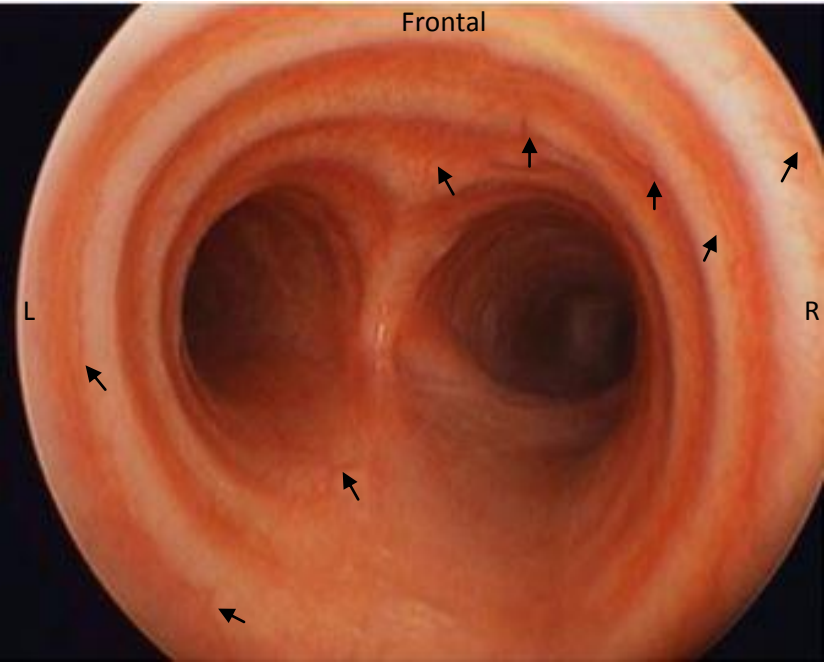


Figure 5. Normal (non-synthetic) trachea (N.B. not the same patient) covered with vascularized functional airway tissue. Arrows: examples of vessels.

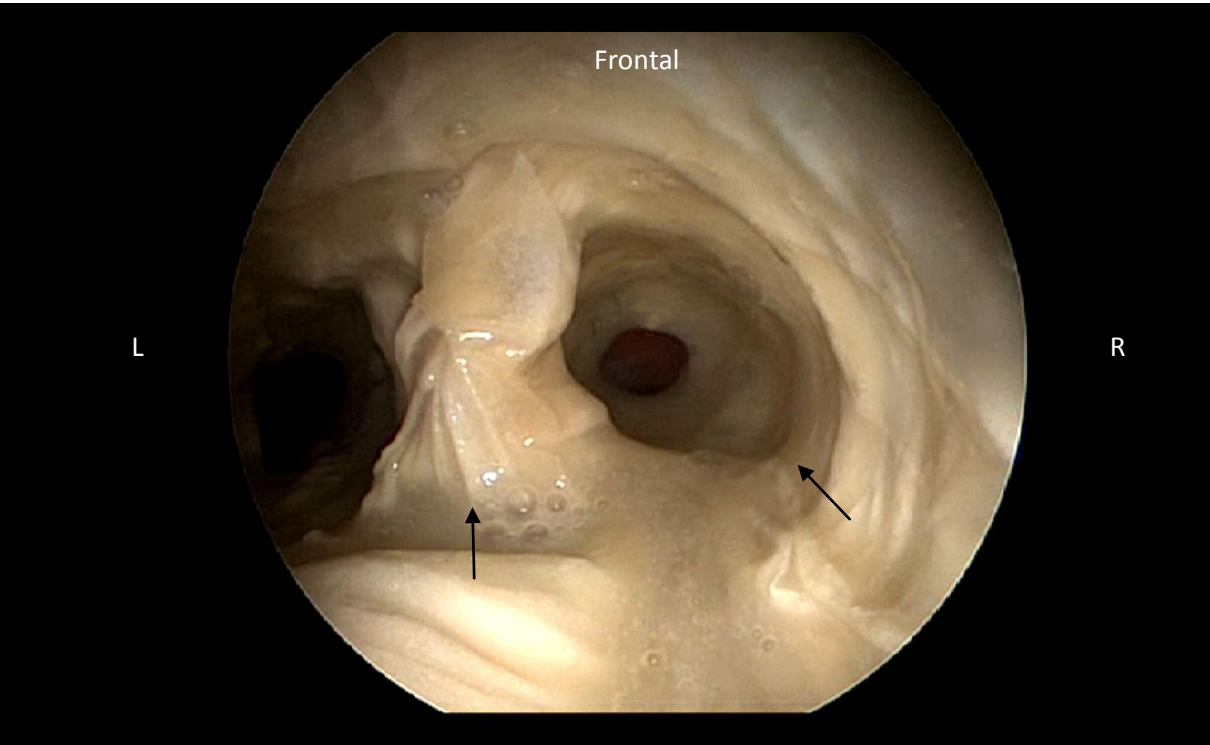


Figure 6. View into dysfunctional synthetic scaffold (yellowish-white) without any covering epithelium, vascularization or tissue ingrowth. Arrows from left to right: Exfoliation on the inner wall of the scaffold, right synthetic main bronchus departure.

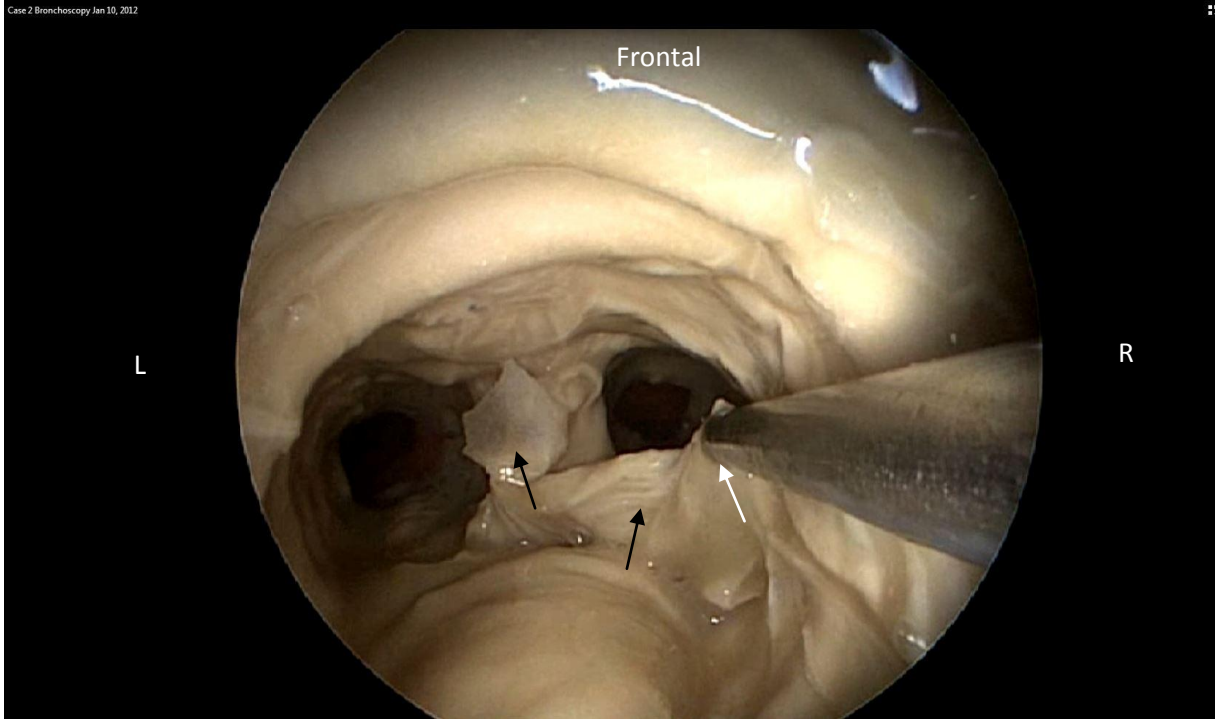


Figure 7. View into dysfunctional synthetic scaffold (yellowish-white wall) without any covering epithelium, vascularization or tissue ingrowth. Arrows from left to right: pathological exfoliation of the inner scaffold wall, bronchoscopy pincers gripping the exfoliation (precipitation) layer.

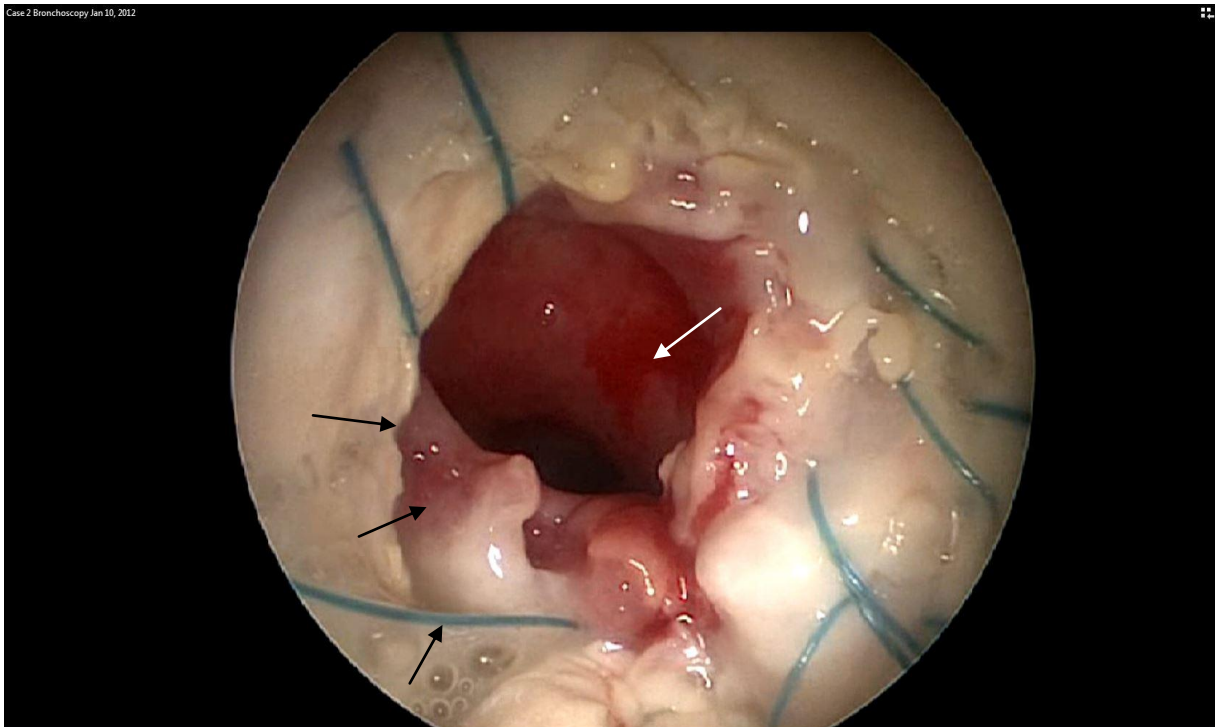


Figure 8. Right distal anastomosis (connection) between the synthetic scaffold's "right leg" and the rest of native right main bronchus (partly folded at 8 o'clock). Arrows from left to right: nude edge of synthetic scaffold without any tissue coverage or ingrowth, partly obstructing anastomotic granulation tissue (as sign of chronic pathological inflammation), loose blue nude (tissue uncovered) suture, native right main bronchus opening (white arrow) partly obstructed by anastomotic granulations from 4 to 9 o'clock.

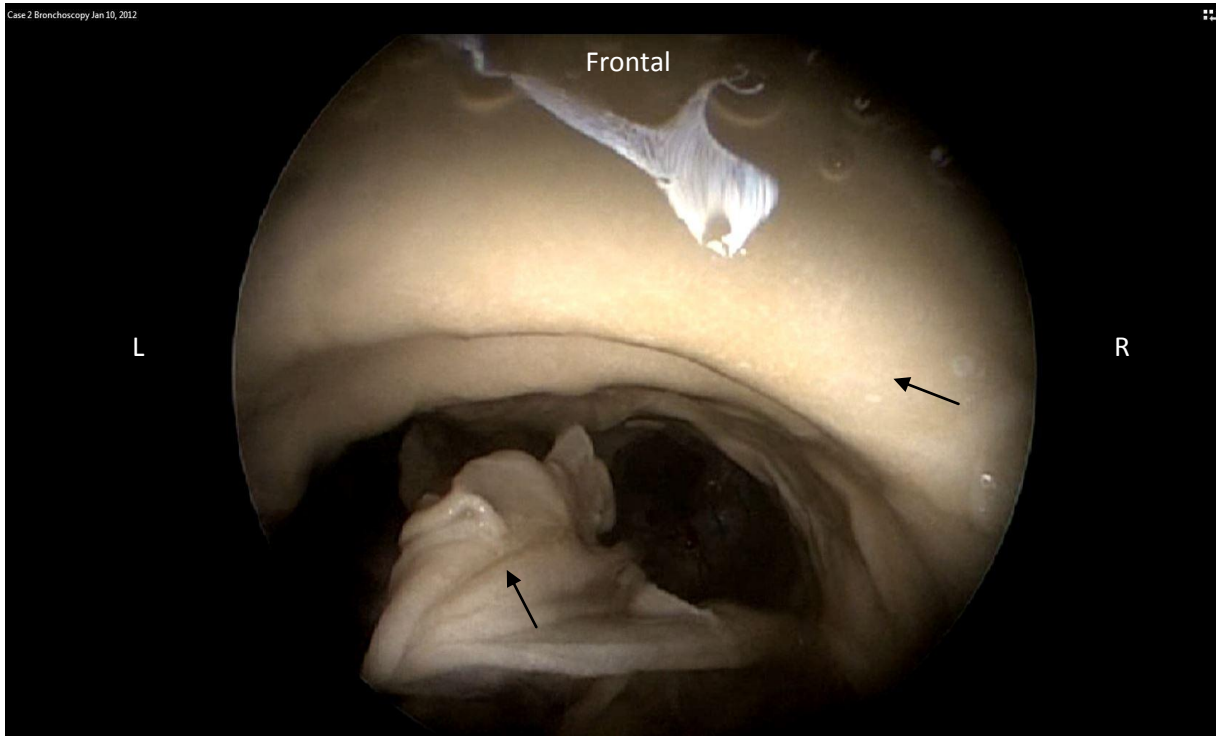


Figure 9. View from the upper part down into the synthetic scaffold. Bronchoscope pulled back from the right main bronchus up into the mid part of the synthetic trachea. Arrows from left to right: bronchoscopy pincers starting to remove the exfoliated inner layer of the synthetic scaffold, nude synthetic implant wall without any covering epithelium, vascularization (no visible vessels compare to figure 5) or tissue ingrowth.

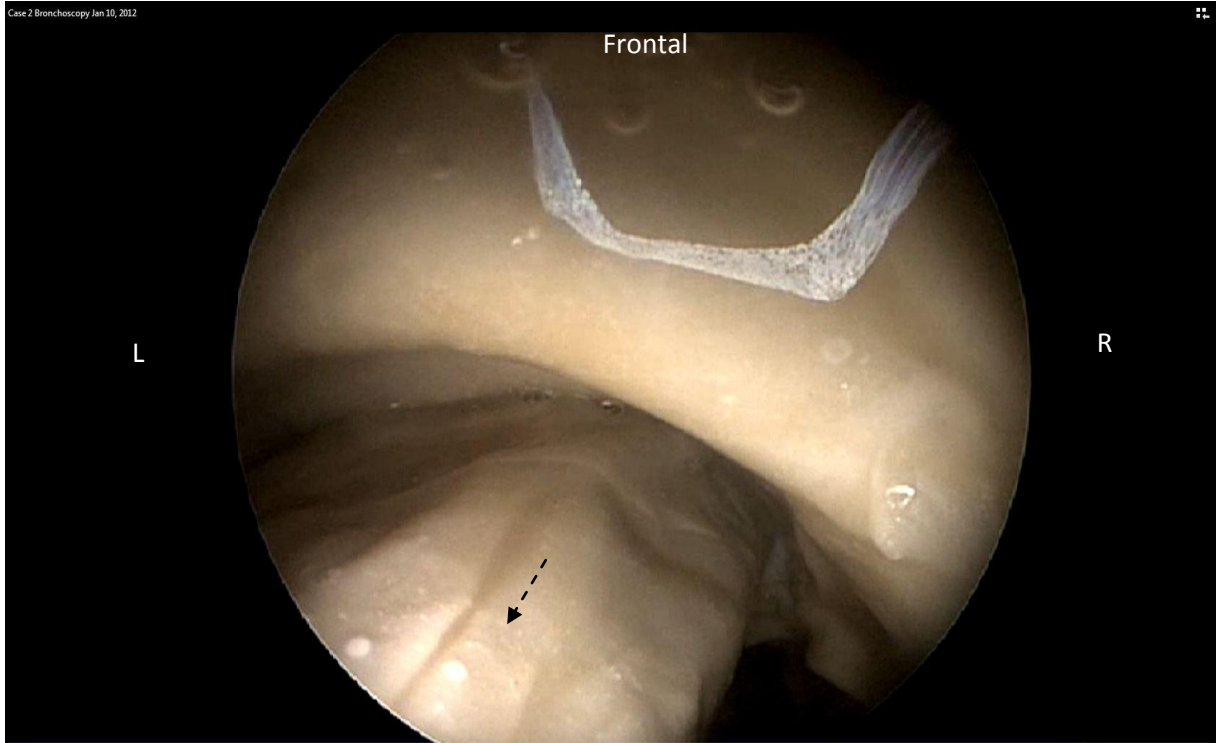


Figure 10. View into the synthetic scaffold. The whole frontal part of the scaffold's inner surface comes off when the exfoliation layer detaches as it is pulled further up to be removed. The dotted arrow shows the direction of the exfoliation detaching (being pulled out) from the inner wall.

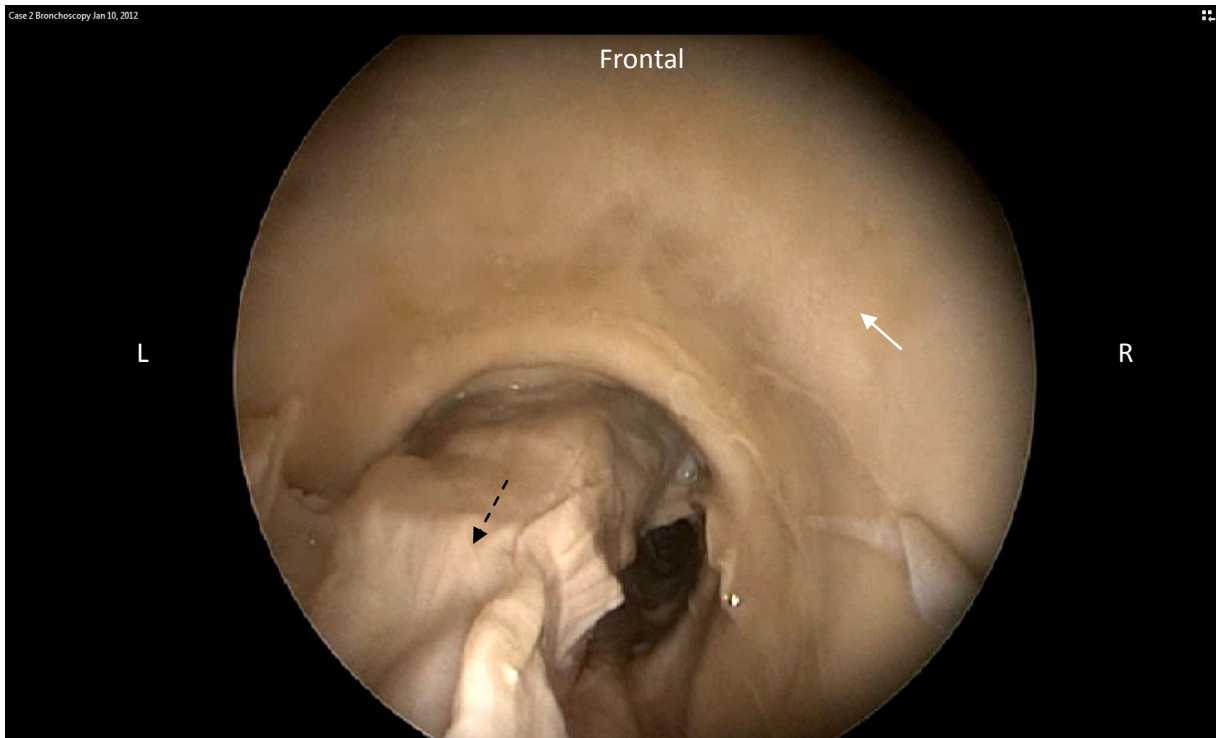


Figure 11. View into the synthetic scaffold. The whole scaffold's inner surface comes off when the exfoliation layer detaches as it is pulled further up to be removed. The dotted arrow shows the direction of the inner scaffold surface (exfoliation) detaching from the inner wall. Note the nude synthetic inner wall (white arrow) without any covering epithelium, vascularization or tissue ingrowth.

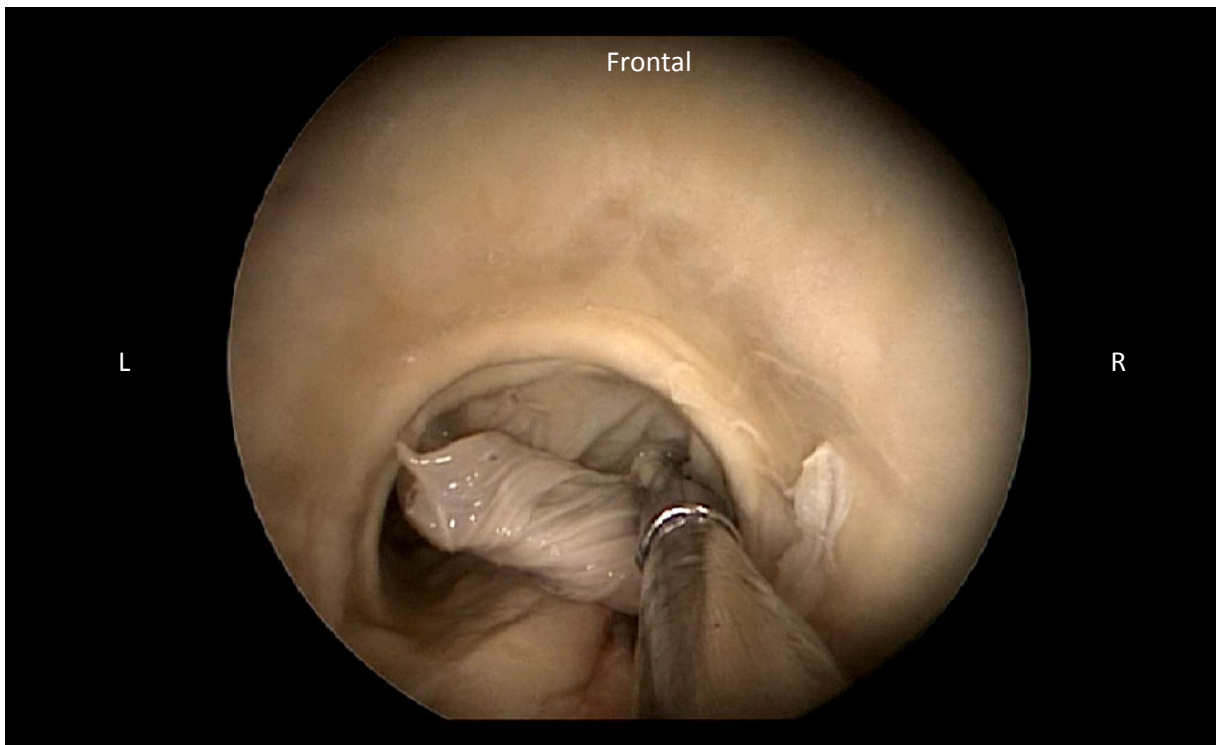
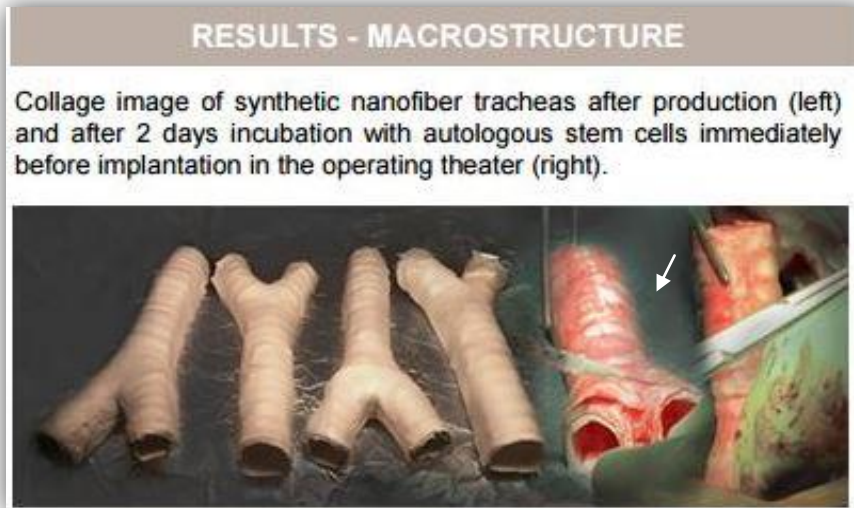


Figure 12. View into the synthetic scaffold. Bronchoscopy pincers further removing the inner surface layer of the synthetic scaffold. **Completely dysfunctional synthetic tracheal scaffold (no tracheal regeneration, covering epithelium, vascularization or tissue ingrowth) is verified 8 weeks after implantation** (compare to the normal tracheal wall in figure 5).

1. Poster publication "First in Man Synthetic Nanofiber Trachea", Aug 2, 2012, http://www.nanofibersolutions.com/Images/posters/First_in_man_nanofiber_trachea.pdf
2. Poster Award Presentation Aug 8, 2012 at the Nanotechnology for Defense Conference, Las Vegas, US, Aug 6-9, 2012. Agenda, page 3 (1330-1830), 4 (1710-1830), 7: "First in Man Synthetic Nanofiber Trachea, Dr. Jed Johnson, Nanofiber Solutions", <https://www.usasymposium.com/nano/docs/2012%20NT4D%20Agenda%2019%20Jul%2012.pdf>
Nanotechnology for Defense Conference, Las Vegas, US, Aug 6-9, 2012, <https://www.regonline.com/builder/site/Default.aspx?EventID=1047321>
3. Nanotechnology for Defense Conference Nov 4-7, 2013, Tucson, US. Poster Award Winners at the 2012 Conference: "First in man Synthetic Nanofiber Trachea, Dr. Jed Jonson, Nanofiber Solutions", <https://www.usasymposium.com/nano/13%20Nano/posters.htm>
4. Regeneration of airways and lung. The official [Russian] website of the project "Investigating the molecular mechanisms and underlying pathways of regenerative medicine approaches the tissue-engineering and cell therapy of airways and lungs": "The first bioartificial stem-cell based laryngo-tracheal transplantations were performed on June 19th and 21st at the Krasnodar Regional Hospital (Russia) by Paolo MACCHIARINI, professor of regenerative surgery at the Karolinska Institute (Sweden, Stockholm), and colleagues", <http://regmedgrant.ksma.ru/index.php?id=6&news=18&lang=eng>
5. Regenerative Medicine News, Press Release, Nanofiber Solutions, Ross Kayuha, CEO, Jun 26, 2012: "The surgeries were performed June 19th and 21st at the Krasnodar Regional Hospital (Russia) by Dr. Paolo Macchiarini, Professor of Regenerative Surgery at the Karolinska Institutet (Stockholm, Sweden), and colleagues.", <http://medicine.osu.edu/regenerativemedicine/news/archive/2012/06/26/surgeons-perform-world%E2%80%99s-first-two-bioartificial-stem-cell-based-laryngotracheal-transplantations-using-nanofiber-solutions-scaffolds-1.aspx>
6. Date of creation of official poster version according to the document characteristics:

Beskrivning	Säkerhet	Teckensnitt	Egen	Avancerat
Beskrivning				
Fil:	First_in_man_nanofiber_trachea			
Titel:	Slide 1			
Författare:	mthompson			
Ämne:				
Nyckelord:				
Skapades:	2012-08-02 16:27:38			
Ändrat:	2012-08-02 16:27:38			
Program:	Microsoft® Office PowerPoint® 2007			

7. Under section “RESULTS – MACROSTRUCTURE” a collage image shows 4 grayish tracheal grafts (left) and 2 operative images (right):



The left of the two right sided perioperative images (arrow) with an injection cannula inserted into the left synthetic main bronchus is a cut image version of the same image in the article *“Cell culture startup’s scaffold used in 2nd-ever synthetic trachea transplant”* published in *MedCityNews* by Brendon Glenn Nov 30, 2011:



<http://medcitynews.com/2011/11/cell-culture-startups-scaffold-used-in-2nd-ever-synthetic-trachea-transplant/?edition=ohio>

8. Nanofiber Solutions Brochure Mar 13, 2013, page 17:
“Tissue Engineered Nanofiber Solutions Scaffolds + Stem Cells = Trachea Replacements.”
http://www.il-biosystems.de/fileadmin/user_upload/Nanofiber_Solutions_Brochure.pdf
9. The image under section “RESULTS – MACROSTRUCTURE” is the same as published in the journal *The Equine Veterinarian*, Jul/Aug 2012, page 18:
“Artificial Nanofibers Solutions trachea successfully implanted into Mr. Chris Lyles”,
http://medivetbiologics.com/wp-content/uploads/2014/11/Equine-Veterinarian_0712_NanoFiber_Transplant_Article.pdf

10. The image under section “RESULTS – MACROSTRUCTURE” is the same image as on Nanofiber Solutions homepage “*The First Synthetic Nanofiber Transplant in the World*”, <http://www.nanofibersolutions.com/>
<http://www.nanofibersolutions.com/regenerativemedicine.html>
11. The image under section “RESULTS – MACROSTRUCTURE” is the same image used in a Work shop at the American Society for Testing and Materials (ASTM) meeting in May, 2013, page 8: “*Characterization and Quality Control of Electrospun Medical Devices*” held by Jed Johnson, Chief Technology Officer at Nanofiber Solutions:



Figure 1. Montage showing as-manufactured nanofiber tracheal scaffolds (left) and an autologous bone marrow seeded nanofiber tracheal scaffold immediately before implantation in the world's first synthetic nanofiber tracheal transplant at the Karolinska Institutet.

[https://www.rms-foundation.ch/fileadmin/user_upload/pdf/dienstleistungen/englisch/ASTM Workshop 2013_all_abstracts.pdf](https://www.rms-foundation.ch/fileadmin/user_upload/pdf/dienstleistungen/englisch/ASTM_Workshop_2013_all_abstracts.pdf)

12. The bronchoscopic image under section “RESULTS – POST SURGERY” is the same image as in “*The Russian Megagrant Plan*” Feb 5, 2012, page 7, the legend reads: “2. A. *Bronchoscopy of PET-nanocomposite trachea one week after implantation (November 2011)...*”



Рис 2: А. Бронхоскопия ПЭТ-наноконпозитной трахеи через неделю после имплантации (ноябрь 2011) показывает появление нормальной слизистой оболочки на биокаркасе; Б. Цилиарные дыхательные

13. Jed Johnson, Chief Technology Officer (CTO) at Nanofiber Solutions. Company presentation to investors at 3rd Annual Regen Med Partnering Forum Oct 23, 2013, <https://www.youtube.com/watch?v=dYo-ffZWCzs>
14. Article: “*Synthetic Windpipe Is Used to Replace Cancerous One*”, The New York Times Jan 12, 2012, <http://www.nytimes.com/2012/01/13/health/research/surgeons-transplant-synthetic-trachea-in-baltimore-man.html>
15. Vice-Chancellor Karin Dahlman-Wright. RE: 2-723/2016 Suspicion of Scientific Misconduct Mar 3, 2016, page 4, 4th section.

16. Trachea-guided generation: déjà vu all over again? Macchiarini P. *J Thorac Cardiovasc Surg.* 2004 Jul;128(1):14-6, page 15.
17. Tracheobronchial transplantation with a stem-cell-seeded bioartificial nanocomposite: a proof-of-concept study. Jungebluth et al., *Lancet.* 2011 Dec 10; 378(9808):1997-2004, Figure 2B: first postoperatively obtained biopsy sample (at day 7).
18. Dr. Macchiarini's response to the external review, "Re: Statement of opinion on assignment ref. 2-2184/2014" Jun 26, 2015 page 2, section 4-5.
19. Today's Medical Developments Dec 1, 2011:
"The company estimates that the nascent market for regenerative medicine devices could potentially grow to hundreds of millions of dollars annually.",
<http://www.todaysmedicaldevelopments.com/article/medical-device-design-manufacturing-hbio-inbreath-bioreactor-trachea-120111/>
20. MedCity News Jan 23, 2012:
"...after the success and attention it's enjoyed since the trachea transplant, Nanofiber Solutions is now looking for partner companies to help it grow its business in artificial organs, which represents a larger market than selling to research institutions. Partner companies would supply regulatory or clinical expertise or investment capital and Nanofiber Solutions would provide the technology... Nanofiber Solutions is hoping to close a series A round of investment between \$2 million and \$5 million this summer, Johnson said.",
<http://medcitynews.com/2012/01/cell-culture-company-sees-promise-in-making-scaffolds-for-artificial-organs/>
21. Health Care, Inside Report "Heal thyself" by Carrie Ghose, Business First, May 18, 2012:
*"Tissue On Demand: Field expected to "explode": hit the \$5B market value",
 "Nanofiber CEO Ross Kayuha projects its lab products sales could hit \$300,000 this year and as much as \$3 million next year."*,
<http://medicine.osu.edu/regenerativemedicine/PressandRecognition/Documents/Columbus%20Business%20First%20Article%20Heal%20Thyself%20OSU%20Spinoff%20Nanofiber%20Solutions%205%2018%202012.pdf>
22. The Ohio State University, Center for Regenerative Medicine and Cell-Based Therapies Jun 26, 2012:
"Collaboration between Nanofiber Solutions and the Karolinska Institutet produces first synthetic laryngotracheal implants seeded with the patient's stem cells to be successfully transplanted into human patients in Russia... We are proud to work side-by-side with Dr. Macchiarini and his team as they help define this new world of stem cell seeded synthetic transplants." said Ross Kayuha, Nanofiber Solutions CEO.",
<http://medicine.osu.edu/regenerativemedicine/news/archive/2012/06/26/surgeons-perform-world%E2%80%99s-first-two-bioartificial-stem-cell-based-laryngotracheal-transplantations-using-nanofiber-solutions-scaffolds.aspx>
23. Alliance for Regenerative Medicine Nov 25, 2012:
"Nanofiber Solutions manufactures the only nanofiber tracheal implant in the world. Our implant has been successfully used in four surgeries in Stockholm, Sweden and Krasnodar, Russia and our first U.S. surgery is planned for fall 2012. The knowledge gained from our stem cell work and our ongoing surgeries is being used to develop our first commercial Tissue Engineering products... Nanofiber Solutions™ offers the only translational 3D cell culture products on the market backed by a 100% money back guarantee.",
<https://www.youtube.com/watch?v=P1NyHXOPNp0>
24. Nanofiber Solutions - Company Presentation by Jed Johnson, Chief Technician Officer, at The 3rd Annual Regen Med Partnering Forum Oct 24, 2013:
"We actively seek out different types of partners... the clinical partners I mentioned... to the Karolinska Institute... so a broad spectrum and various stages of development from small animals, to large animals to human applications... I look forward to talking with you... We are actively looking for seed investments as well as other types of strategic partners...",
<https://www.youtube.com/watch?v=dYo-ffZWCzs>

25. OnCampus, The Ohio State University Dec 9, 2013:
"A biotechnology company [Nanofiber Solutions] started by researchers at Ohio State has been cited as one of the nation's best examples of the benefits that federally funded research provides to the American economy.",
<http://oncampus.osu.edu/osu-biotech-spinoff-lauded-for-fueling-american-innovation/>
26. Article: "Ex-Harvard Bio Prez Leads Spin-Off's Plan to Make Engineered Organs" by Ben Fidler, Xconomy, Feb 18, 2014:
"It's genuinely exciting stuff," Green says of the organ project. "It makes great cocktail party conversation; it's a great story to tell your children... In commercializing engineered tracheas, HART wants to target patients like Beyene who have trachea cancer, as well as those who have suffered tracheal trauma or who were born without a windpipe. That's about 6,500 patients annually worldwide, a market the company estimates at about \$300 million, according to SEC filings. It would then branch out into other engineered organs... Should HART face that day successfully; Green estimates that it could sell each engineered trachea for between \$100,000 to \$200,000.",
http://www.xconomy.com/boston/2014/02/18/ex-harvard-bio-prez-leads-spin-offs-plan-to-make-engineered-organs/?single_page=true#
27. RegenMed Investor Day, New York City, Mar 26, 2014. Investment Highlights, David Green, CEO, HARVARD APPARTUS Regenerative Technology (HART),
<https://www.youtube.com/watch?v=zEXdm6Fhh0g>
28. Seraphin Group's (Investment Advisory Firm, US) interview of David Green, CEO, HART Nov 24, 2013:
"I have a big investment in the company... is by far the biggest single asset in my family's wealth... putting my money where my mouth is... I own about 5% of the shares... I own additionally 9% of the company... Bioreactor and scaffold are sold as a single unit... 100.000 USD per procedure..." David Green is heavily lying on clinical data,
<https://www.youtube.com/watch?v=EzCdH-zUh7c>
29. Patents:
- a. <http://patents.justia.com/inventor/jed-k-johnson>
 - b. <http://patents.justia.com/patent/20130150963>
 - c. <http://patents.justia.com/inventor/paolo-macchiarini>
 - d. https://worldwide.espacenet.com/publicationDetails/inpadoc?CC=US&NR=2013142835A1&KC=A1&FT=D&ND=3&date=20130606&DB=EPODOC&locale=en_EP

Karolinska Universitetssjukhuset Öron-,näs- och halskliniken, Huddinge Avdelning B82 141 86 STOCKHOLM tel: 08-585 877 91 fax:08-585 873 25	11002521SV1	JOURNALBLAD	Utskr.id: \	Sida 1 av 1
		2011-62	KOPIA	
		Stockholm Care Ab 113 82 Stockholm Tel:		
2012-01-10 11:55 Jan-Erik Juto, Läk H - ÖNH-avd B82 (låst)				
OPERATIONSBERÄTTELSE				
Patientansvarig läkare	Jan-Erik Juto (läk) /1f3x/			
Operatör	Jan-Erik Juto (läk) /1f3x/			
Operatör 2	Paolo Macchiarini.			
Diagnos enl ICD-10	C339 Malign tumör i luftstrupen			
Operations- åtgärdskod	UGC05 Rigid bronkoskopi med biopsi från bronk eller trakea			
Operationsförlopp	<p>Jetventilation. Går ner med ett stelt 7,5 bronkoskop och optikkamera till stapel. Hela op-proceduren dokumenteras. Kommer ner till övre anastomosranden mellan graft och trakea. Suturer är väl synliga relativt och det var egentligen ingen granulationsväxt här. Man ser i carinaområdet på graften en exfoliering av ytlager i graften. Detta borttages med tång och sändes separat för undersökning. Jag tittar ner på vä sida och det finns en del sekret distalt i vä bronken som suges rent. Det finns lite granulationer i anastomosen vä bronk medialt, dessa lämnas, de är lättblödande, dock ej speciellt lumeninskränkande.</p> <p>Går över på hö sida och här finns en viss stenosering av granulationsvävnad i anastomosnivån. Suturer synliga. Man kan se avgången för ovanlobbronken framåt och något åt hö och det finns en del någorlunda klart sekret som suges distalt i bronkträdet. Går sedan upp och på professor Macchiarinis önskemål togs dels biopsier mitt i graften på vä sida snett bakåt och även borstprov togs från graften. Här efter görs borstprov från hö och vä underlob. Prover skickas för svampodling, bakterieodling och cytologi på celler PAD. Efter rensugning avslutas op.</p>			
----- slut utskrift -----				

Bronchoscopy report at 8 weeks, Jan 10, 2012: ***“Exfoliation of the outer layer of the graft. Sutures are clearly visible”*** [at the upper and both distal anastomotic sites]. A detailed report (written by a senior ENT-physician) containing no description of any signs or presence of tissue ingrowth in the synthetic scaffold. Clearly visible sutures verify no tissue ingrowth from the anastomosis sites. The absence of any tissue ingrowth and vascularization (completely dysfunctional synthetic scaffold) is also clearly verified by the full bronchoscopic recording of the very same procedure. PM was participating in the procedure and is registered as the surgeon nr 2 in the report.

FRÅN	STOCKHOLMS LÄNS LANDSTING		SVAR PATOLOGI/CYTOLOGI	Sida 1 (2)
	Karolinska Universitetssjukhuset Karolinska Universitetslaboratoriet Klin Pat/Cyt lab Tfn	B: 11002-521-SV1 S: 11002-521-SV1 F: 11002-521-S03 R: 1026-8303945-1 L: T344-12		
TILL	Karolinska Universitetssjukhuset Öron-,näs- och halskliniken, Huddinge Avdelning B82 141 86 STOCKHOLM			
Provtagningstid: 2012-01-10 11:41		Remittent: Jan-Erik Juto		
Ankomstid lab: 2012-01-11		Tfn:		
Preparatets natur:	biopsier från tracheo-bronkialgraft			
Frageställning:	cellväxt?			
Anamnes:	prep märkt 1: exfoliat från insidan i carinaområdet av graft. Finns cellväxt här? Typ?? prep märkt 2: Biopsier från intraluminalt område till vänster i tracheala delen av graft. Strålbehandlad: Nej			
SVAR				
Tidigare utlåtande 2012-01-27 T344/2012 L 2011-62				
1: Materialet består huvudsakligen av graffdelar omgivna av äggviteprecipitat innehållande fokalt stor mängd leukocyter. På ett par ställen enstaka grupper av kärnförande celler, som immunhistokemiskt är av epitelial typ och utan nämnvärd atypi (närmast förefaller det röra sig om skivepitelceller).				
2: Minimalt material av samma karaktär som i fraktion 1.				
1+2 Ingen sammanhängande bedömbar vävnad påträffad. Tidigare diagnos 1+2: Graffmaterial med inflammatorisk celltillblandning och minimala epitelflagor av skivepiteltyp.				
BIOBANKSINFORMATION Provet får användas för samtliga, enligt biobankslagen, godkända ändamål.				
KOMPLETTERANDE UTLÅTANDE 2012-02-10 T344/2012 L 2011-62				
Specialfärgning för mikroorganismer (gram och Grocotte) visar svamplika och bakterielika mikroorganismer.				
DIAGNOS 1+2: Graffmaterial med inflammatorisk celltillblandning och minimala epitelflagor av skivepiteltyp.(se ovan). BIOBANKSINFORMATION Provet får användas för samtliga, enligt biobankslagen, godkända ändamål. Nada Majeed 2012-02-10				

Biopsy report at 8 weeks, Jan 10, 2012: ***“The material contains mainly of graft parts surrounded with egg white precipitation [N.B. completely pathological non-vascular finding not equivalent to tissue ingrowth, or cellular lining] focally containing large amounts of leucocytes.”***, ***“No coherent tissue can be detected.”***, ***“Graft material with admixture of inflammatory cells and minimal flakes of squamous epithelium type.”***, ***“Special stain for micro-organisms (gram and Grocotte) shows fungi and bacteria like microorganisms.”*** PM was present at the intervention deciding the locations of the biopsies from the middle inner part of the scaffold (Appendix 1).

Karolinska Universitetssjukhuset Thoraxkliniken, Solna N14 Thorax-IVA 171 76 Stockholm tel: 08-517 748 04 fax:08-517 757 44	JOURNALBLAD Utskr.id: ' Sida 1 av 1 2011-62 KOPIA Stockholm Care Ab 113 82 Stockholm Tel:
2011-11-18 11:56 Jan Van Der Linden, Läk S - N14/24 Thiva/Thima (signerad)	
DAGANTECKNING	
Allmäntillstånd	mår bra, behöver ordentlig smärtstillning med morfininf+catapressaninf
Cirkulation	SR 100-110, MAP 90-100
Lungfunktion	egenandning AF ca 20, CPAP 5-7 med andningsunderstöd 10-12 vb, skall kunna andas på "näsa" dvs via talkanyl. Mobilisering extremt viktig - sitta i stol, stå upp. Kort sugning i trachealkanyl tillåten. Bronkoskopi idag av Dr Kuylenstierna visar mkt bra förhållanden. Inget subcut emfysem. Viss ringa luftläckage via hö pleuradrän, nytt ställningstagande i morgon om event drändragning. Lungrtg ua
Neurologiskt status	Nu helt cerebralt intakt. Skriver själv meddelande på pappersblock. God kraft i armar och ben bilat ingen sidoskillnad.
Buk	buksårdrän kvar tills i morgon, då det troligtvis kan dras
Nutrition	Får börja försiktigt per os idag max 500 ml, först vatten. Kabiven i tillägg.
Njurstatus IVA	god diures, krea 85
Infektion IVA	kvar på claforan detta dygn
Blödning/koagulation	fragmin 5000Ex1 sc
Planering	KAD ut, artnål ut, dialyskat ut. Rtg pulm 19.11 Blodprover special dagl 0900 enl schema, Paulus assistent kommer då för provhämtning. Mobilisering mkt viktig Inga större ändringar utan kontakt med Prof Macchiarini Pat får ej plusbilanseras ----- slut utskrift -----

Bronchoscopy at day 1, Nov 18, 2011. No formal routine bronchoscopy report or documentation was made. The bronchoscopy is just briefly mentioned with one single sentence in the daily notes **"Bronchoscopy by Dr Kuylenstierna shows very good status."** No text, biopsy, photo or film documentation in the medical records that supports the author's conclusions found in the poster text.

Karolinska Universitetssjukhuset Thoraxkliniken, Solna N14 Thorax-IVA 171 76 Stockholm tel: 08-517 748 04 fax:08-517 757 44	JOURNALBLAD Utskr.id: Sida 1 av 2 2011-62 KOPIA Stockholm Care Ab 113 82 Stockholm Tel:
* 2011-11-20 11:27 Jan Van Der Linden, Läk S - N14/24 Thiva/Thima (signerad) Rättelse: 2011-11-20 11:43 Jan Van Der Linden, Läk	
DAGANTECKNING	
Allmänna uppgifter	Trachealtranspl 17.11
Allmäntillstånd	mår bra, smärtstillning hitintills med morfininf+catapressaninf som sätts ut. Toradol kvar + alvedon + morfin-PCA
Cirkulation	SR 90-100, MAP 70-90 v4 arm, MAP ca 15mmHg lägre hö arm, CVK-venös drygt 70%[ny text >>], Viss ST-höjning anteriort - inflammation i perikard pga oment, normalt CKMB[<< ny text]
Lungfunktion	egenandning AF ca 20, andats intermittent på "näsa" dvs via talkanyl. Saturation ned mot 90% inatt men bättre efter ökning av FiO2 till 60%. På morgonen 98% med 2 liter syrgas på talkanyl. Rtg visar nytillkommen atelektas hö apikalt och bronkoskopi av Dr Macchiarini bekräftar slem/blodpropp motsvarande bronk till hö ovanlob. Ingen luftläckage. Dekanylering och drändragning för att förbättra mobiliseringen och upphostning (katapressan och morfininf utsättes). Mobilisering extremt viktig - sitta i stol, stå upp och gå runt. Lungrtg 20.11 19.00 + 21.11
Neurologiskt status	Nu helt cerebralt intakt. God kraft i armar och ben bilat ingen sidoskillnad.
Buk	Movikol och nexium
Nutrition	Intag per os
Njurstatus IVA	KAD kvar?, nere på utgångsvikt, ter sig ngt tom med CVP runt och törst. Kan få gå ngt positivt.
Infektion IVA	Sista claforandos i morse.
Blödning/koagulation	fragmin 5000Ex1 sc
Planering	- Rtg pulm ikväll och i morgon bitti - Blodprover special dagl 0900 enl schema, Paulus assistent kommer då för provhämtning. Erytropoetin vad enligt schema och Paulus assistent kommer med doserna.

Bronchoscopy at day 3, Nov 20, 2011. No formal routine bronchoscopy report or documentation is made by PM. The bronchoscopy is briefly mentioned with one single sentence in the daily notes written by another senior consultant "**...bronchoscopy by Dr Macchiarini who verify slime/blood clot corresponding bronchus to right upper lobe.**" No text, biopsy, photo or film documentation in the medical records that supports the author's conclusions found in the poster text.

Karolinska Universitetssjukhuset Öron-, näs- och halskliniken, Solna Mottagning 171 76 Stockholm tel: 08-517 768 60 fax:08-517 742 65	11001521M02	JOURNALBLAD	Utskr.id:	Sida 1 av 1
		2011-62	KOPIA	
		Stockholm Care Ab 113 82 Stockholm Tel:		
* 2011-11-28 18:37 Richard Kuylenstierna, Läk S - ÖNH mott (signerad)				
Rättelse: 2012-01-10 10:19 Jan-Erik Juto, Läk				
Rättelse: 2012-01-10 10:17 Jan-Erik Juto, Läk				
OPERATION				
Preop. bedömn.	Pat har blivit successivt sämre. Högfebril och infiltrat på lungorna. Finns även lite luft omkring den nedre anastomoserna och i mediastinum. Syrgasberoende. Juto har varit i kontakt med prof Macchiarini. Man rekommenderar re-trakeostomi. Pat lättsederad med Fentanyl.			
Operations- åtgärdskod	GBB00 Trakeostomi UGC12 Flexibel bronkoskopi ZXD00 Akut operation			
Operatör	Richard Kuylenstierna[ny text >>]Jan-Erik Juto[<< ny text] (läk) /mwj/[ny text >>] /13x/[<< ny text]			
Operatör 2	[ny text >>]Richard Kuylenstierna (läk) /mwj/ [<< ny text]			
Operationsberättelse	Trakeostomisåret står öppet och är infekterat. Rengör i och omkring såret. Med Carléns hakar visualiseras kanalen ner till trakea som ligger djupt. Man kan se den övre anastomosraden genom stomat. En 8:ans portex med kuff lirkas ner i trakea. Kan därefter suga rent. Övergår så till bronkoskopi. Med fiberteknik går ner via den nyinsatta kanylen. Måttligt med sekret i anastomoserna men desto mer längre ner i framförallt hö lunga. Suger rent där till odling. Sekretet är blodtillblandat purulent. På vä sida ser det något bättre ut. Det förefaller endoskopiskt ganska tätt i de nedre anastomoserna. Själva transplantatet står öppet och några tecken på slemhinneinväxt etc finns inte än. Ingreppet avslutas. Förband. Lite syrgas på kanylen har pat 100% saturation.			
----- slut utskrift -----				

Bronchoscopy at day 11, Nov 28, 2011, by senior ENT-physician with detailed report stating: *"...and there are no signs of tissue ingrowth yet."*

FRÅN	STOCKHOLMS LÄNS LANDSTING		SVAR PATOLOGI/CYTOLOGI	Sida 1 (1)
	Karolinska Universitetssjukhuset Karolinska Universitetslaboratoriet Klin Pat/Cyt lab Tfn	B: 11001-341-306 S: 11001-341-306 F: 11001-341-306 R: 1026-7510367-9 L: T12760-11		
TILL	Karolinska Universitetssjukhuset Thoraxkliniken, Solna N 13/23 Thorax 171 76 Stockholm		Regnr T12760-11	
Provtagningsid:	2011-08-04 10:00	Remittent:	Karl-Henrik Grinnemo	
Ankomstid lab:	2011-08-04	SNABBSVAR:	Tfn: 0700568440	
Preparatets natur:	Syntetisk trachea med inodlade autologa celler			
Frageställning:	Strukturell översikt av det syntetiska graftet, extracellulära matrix proteiner? engraftade celler?			
Anamnes:	<p>Det vi skickar för undersökning är samma graft (syntetisk trachea) som implanterades i pat i juni i år. Det här graftet är syntetiskt och har samodlats med autologa stamceller. Vi är därför intresserade att studera ur strukturen på graftet ser ut när det samodlats med celler och vill därför ha följande analyser:</p> <p>1) HTX 2) Giemsa 3) Mason Trichrome 4) Verhoeffs elastic staining. Materialet består av 3 olika olika delar: v8 bronk, hö bronk samt trachea. Preparaten ska paraffinbäddas</p> <p>Strålbehandlad: Nej</p>			
<hr/>				
SVAR				
UTLÅTANDE				
2011-09-06 T12760/2011				
2011-442098				
<p>I snitten från de insända tre rör syntetisk trachea som representerar vänster bronch, höger bronch samt trachea ses likartad bild av ej färgbart poröst material med dubbelbrytande karaktär. På ytan av detta syntetiska material kan endast ett fåtal smala mesenkymala celler förmodas. Något välutvecklat cellager kunde ej identifieras.</p>				
<p>Tillägg: Vid specialfärgning och i ytterligare utskurna bitar framkomer ej mer detekterbart material som vid ovan.</p>				
DIAGNOS				
Se ovan.				
BIOBANKSINFORMATION				
Patienten vill inte att provet lagras, men svarstalong saknas eller har ännu ej registrerats. Provet lagras tills vidare i avvaktan på att svarstalong inkommer/registreras.				
Bela Bozoky 2011-12-01				
-----slut-----				

Biopsy from synthetic graft at implantation Jun 9, 2011 *"In the sections from the three samples of the synthetic trachea which represent the left bronchus, right bronchus and trachea a similar picture of non-stainable porous material with double refractory characteristics. On the surface of this synthetic material only a few thin mesenchymal cells can be suspected. No well-developed cell layer could be identified."*

	STOCKHOLMS LÄNS LANDSTING		SVAR PATOLOGI/CYTOLOGI	Sida 1 (1)
FRÅN	Karolinska Universitetssjukhuset Karolinska Universitetslaboratoriet Klin Pat/Cyt lab Tfn	B: 11001-341-306 S: 11001-341-306 F: 11001-341-306 R: 1026-7588461-7 L: T13678-11		
TILL	Karolinska Universitetssjukhuset Thoraxkliniken, Solna N 13/23 Thorax 171 76 Stockholm		Regnr T13678-11	
Provtagningsid:	2011-08-24 08:00	Remittent:	Karl-Henrik Grinnemo	
Ankomstid lab:	2011-08-25	SNABBSVAR:	Tfn: 0858582443	
Preparatets natur:	Syntetisk trachea graft			
Frågeställning:	Cellinväxt? Extracellulärmatrix struktur?			
Anamnes:	<p>Pat som op med trachea graft i juni. Detta är ett syntetiskt graft coatat med mesenchymala stamceller. Vi har tagit provbitar före implantation som vi vill få analyserade angående cellinväxt, matrix struktur? Jag hänvisar till telefonkontakt med Överläkare Bela Bozoky. Var snäll och meddela läkaren att proverna har anlänt.</p> <p>Strålbehandlad: Nej</p>			
<hr/>				
SVAR				
UTLÅTANDE				
2011-08-26 T13678/2011				
2011-442098				
<p>I snitten från de insända fyra små vävnadsbitarna kan ett poröst främmande material av syntetisk graft identifieras. Några detekterbara cellkomponenter eller matrixstruktur ses ej.</p>				
DIAGNOS				
Se ovan.				
BIOBANKSINFORMATION				
<p>Patienten vill inte att provet lagras, men svarstalong saknas eller har ännu ej registrerats. Provet lagras tills vidare i avvaktan på att svarstalong inkommer/registreras.</p>				
Bela Bozoky 2011-09-02				
-----slut-----				

Biopsy from synthetic graft at implantation Jun 9, 2011 *"In the sections from the four delivered small tissue samples a porous foreign material of synthetic graft can be identified. Any detectable cellular components or matrix structures are not seen."*