

Chapter 1

One month implant

Question 1

A title of this book 'One month implant' sounds like a common noun to me, is that a name of implant?

Answer 1

Yes, that is right.

We use a common noun "one month implant" to emphasize the characteristic of revolutionary implant which integrates with the body, becomes one's own tooth, and starts to function as one's natural tooth in one month, therefore we use 'one month implant' as a brand name. However, its official name is 'AQB implant'.

Question 2

You mentioned that the implant becomes one's own tooth in only one month, so does it mean that we would be able to eat a solid food with ease and clench our teeth as we could with natural teeth, and also we can have concentration when we play sports?

Answer 2

Yes, absolutely.

(1) You can bite even a solid food and enjoy meals like you could with your natural teeth in only one month.

You can clench your teeth without hesitation and for example, you can improve concentration when you play sports.

Moreover, in case when you plant implant for your front tooth, you will be able to pronounce well without voice leakage.

You can also laugh with your mouth wide open.

So, it means that you can have same function as your natural tooth with the implant in one month.

(2) By the way, patients need to wait about six months to eat food with normal implants in many cases. On the other hand, this 'one month implant' requires only one month for patients to start eating food. Therefore stress of patients would be reduced. If you compare going to dental clinic for six months or one month, now you know that value of this implant.

This is a miracle physiological characterization.

Physiological characterization is to generate newly generated bone from implant side and from jawbone side by AQB implant to integrate and to become a part of body (refer fig.1).

(3) However, 'only one month' does not only mean that temporal productivity is simply six times higher than using normal implants and reduce the mental and physical stress because of the time gap.

The important point is that this 'one month implant' can taken into the body in only one month and integrates with the body to become one's own tooth.

This is a remarkable and world's first event.

A common sense in the implant world, a patient needs to wait about six months to be able to eat food.

Additionally, normal implants become familiar with jawbone in six months but this does not mean that the implants would integrate with jawbone biologically.

This is a big difference from 'one month implant; AQB implant'.

Question 3

Why can AQB implant only requires one month for patients to be able to eat in one month but normal implants requires six months?

Answer 3

We can distinguish an AQB implant as a living implant and a normal implant as a foreign implant.

A foreign implant is a foreign matter to the body, therefore using a foreign implant mean that implanting a foreign matter.

Normally, a foreign matter is made from titanium which is a material that body would not refuse comparatively.

Why does rejection rarely occur?

It is because titanium surface is covered with oxide film and easy to be oxidized all the time. For that reason, even when a foreign matter (titanium) is implanted, metal ion would not outflow because of the oxide film, consequently danger would be reduced relatively.

However, it is still a metal and a foreign matter.

As a result, a foreign implant takes six months to become familiar with jawbone and fix. Yet, fixing does not mean that the implant is taken into the body biologically and integrates with jawbone.

In contrast, a living implant has remarkable characteristics.

So, what is the difference?

The crucial difference is that a living implant is not a foreign matter to the body.

So, what does 'not a foreign matter to the body' mean?

First of all, osteoblasts are generated from both implant (AQB implant) and jaw bone sides. The cells generate newly generated bone and both sides of newly generated bone integrates by bio affinity.

We call power that integrates AQB implant with jaw bone like lovers as bio affinity power.

A living implant integrates with bone aggressively and physiologically to become part of body.

AQB implant has physiological binding characteristic , in short bio affinity power.

Please refer answer 6 for more details.

Secondly, a living implant has strong binding power that it only takes two to three weeks to integrate.

All the process would finish after the placement of crown. The whole process would take about one month. AQB implant realized this characteristic which is world`s first and there is nothing like this in the world. .

Question 4

By the way, you said 'one month' but does this apply to everyone?

Answer 4

(1) AQB implant has characteristic to integrate with jaw bone at early stage (bio affinity power). Jaw bone and implant integrate physiologically in two to three weeks, therefore you will be able to start eating in one month after placing a superstructure (crown).

(2) However, bone mass and ossein changes individually.

For example, if jaw bone is weak such as serious diabetes patients`, in short, if bone mass and ossein is low, he/she would take two to three month to start eating food.

(3) Yet, AQB implant would not take six months that other implants require.

However, in some cases, dentists who had been using normal implants for a long time may wait two or three month to place a crown when it only need to wait one month from the surgery because he/she is not used to integrates bone with implant quickly when he/she uses one month implant.

(4) If a patient has serious periodontal disease that cannot receive implant treatment right away, he/she needs to finish the treatment first then it will take a month to

become one`s own tooth.

(5) Moreover, when a patient leaves a tooth extraction site for a long time without any treatment, jawbone gradually gets thinner.

In this case, he/she need to receive surgery that increase bone mass for implantation, therefore 'one month' begins from when he/she start to have enough bone mass.

(6) As it mentioned above, the one month implant`s 'one month' presuppose the healthy jawbone.

However, the speed for the implant to become one`s own tooth is nothing to compared to a foreign implants`.

There is an expression that 'get 30 km per liter' in car function.

At this time, 'get for 30 km per liter' premises that a car runs on the flatness road for 30 km.

A mountain pass and a steep slope is exceeding assumptions.

Question 5

So, you said that "This implant becomes one`s own tooth", is that mean that the implant becomes like my natural tooth?

If that true, it is like a miracle I mean, it is a revolution.

Would you be able to tell me how that happens?

Answer 5

'Becomes one`s own tooth' has two meanings.

(1) One is that the implant functions as one`s natural tooth.

You can even bite a solid food and enjoy meals which you could with your natural teeth.

You can clench your teeth without hesitation and for example, you can improve concentration when you play sports.

Moreover, you will be able to utter well.

You can also laugh and sing with our mouth wide open.

(2) The other is that this AQB implant becomes a part of the body as a biological function (bio affinity power, refer fig.1) and integrates with jawbone. Only AQB implant has this characteristic on earth.

Experience of AQB Part 1

"Lack of interest in conversations."

Mr. Kotaro Yoshida 64 year-old, Man

I do not usually be aware of air every time when I breathe normally, but it is very true that we cannot live without air even just for 5 minutes.

I recently have realized that teeth are like air from the event.

I had never thought about losing all my teeth or the importance of teeth.

However, my four lower front teeth had to be taken out because of my laziness.

Then I realized that teeth are essential for everyday life. It is a problem.

First, when I talked to people without front teeth, I could not utter right.

I was surprised that I could not even talk without teeth.

I was really shocked that I could not explain my business in front of people because I could not utter right.

Unexpected event happened to me suddenly.

Moreover, it was also shocking that when I opened my mouth, I knew that I was not handsome but when I looked at my face in the mirror, I looked like an ugly old man.

When I said "Who are you?" to a guy in the mirror, an ugly old man in the mirror said to me, "Who are you?".

I did not feel like to see the mirror anymore since.

What is worse, it seemed that I aged rapidly and looked like an elderly person who did not have spirit. Obviously, I did not look like I had power to persuade people at outside.

I realized then that appearance is also important as a person. I was in trouble.

Furthermore, I realized that I had hard time eating food without teeth, and was really inconvenient.

I had to use the back teeth consciously when I tried to bite food.

I had not paid any attention to eat, but I found then that I had to pay attention to what I eat because I did not have teeth.

Feeling of eating an apple itself is like a dream with a dream

I had not shown any respect to my teeth but the event realized me the importance of teeth for the first time.

Therefore, I ran into my dentist`s office.

I said "I have to hurry because of my job" and my dentist said "New implants will start to work better than your natural in less than a month" when he was looking at the

x-ray.

My implant surgery had finished in a blink without any pain.

I felt like it took less than 30 minutes.

I was surprised but relieved.

He really is an excellent dentist.

He said, "Please visit me again tomorrow, I will check the result of surgery. And also, please visit me again two weeks later to check if bone and implant are integrated. I believe that it would be fine. Bone and implant would integrate in three weeks at the latest, so I will place a crown and the treatment will be finished in one month."

I said, "Do you think that this ugly old man face will be better?" then he said "It will be better than before".

My new teeth were born in less than one month and they are better than my natural teeth.

I think my new teeth looks nicer than my original front teeth and row of teeth is also better.

Moreover, I am really happy that I can speak fine when I talk to people.

I am able to laugh with my mouth wide open without any hesitations.

The ugly old man looking face was gone and of course, I can eat good food.

I can bite and clench and when I play sport, I feel like concentration is improved than before.

But, I could not become a handsome man.

I have to tell you that I had to have good facial feature in the first place.

Lastly,

Having no teeth is synonymous with dead for animals in nature.

However, human breaks the nature's rule by the invention of this great implants.

I just thought I that I can say about implant in this exaggerated way.

I think that I can make clear distinction between human and non-human.

I believe that definition of human can change by someone who is able to use tools to someone who uses implant.

This is my experience of the implant

Thank to the recovery of teeth, I could become human from animal, and I am happy.

Question 6

What is the mechanism of 'become one's own tooth'?

Answer 6

Please refer the fig. 1.

It is an image of opening a hole to the jawbone to install AQB implant, and installed AQB implant there.

(1) AQB implant and jawbone has normally few microns to several dozen microns of clearance between them.

The clearance occurs due to the sharpness of a drill and movement of the dentist's hands, or movement of the patient, etc.

Concerning AQB implant, even if the clearance was opened and loose, experiment approved that newly generated bone would fill up the clearance and regenerate and fix strongly.

(2) By the way, the surface of AQB implant that is planted on the jawbone incorporates power to produce the one month implant's 'one month'; bio affinity power.

Implant integrates with jawbone to become one's own tooth with this power.

(3) Then where this bio affinity power comes from? The three mechanisms produce this power.

(4) Three mechanisms to produce bio affinity power

First one is the bio affinity power which is produced by a thin capsule of pure recrystallized HA which forms the surface layer of AQB implant.

Simple HA does not produce bio affinity power.

Pure recrystallized HA is originally an ingredient of bone, bio affinity power that is produced from there is the first key power.

(5) Second one is high density of calcium ion and Phosphorus ion are accumulated stably at the surface, and the ion and pure recrystallized HA takes Bone morphogenetic protein and osteoblasts, and form thin membrane of newly generated bone to cover the implant.

This high calcium phosphate ion is the second key power.

(6) These two bio affinity powers are the source of bio affinity power.

Implant would be covered with the thin affinity layer which includes newly generated bone by these two powers. (Refer picture 1)

(7) Next, newly generated bone is produced rapidly from affinity layer side and jawbone side. On the other hand, same newly generated bone are produced from jaw bone sides, therefore fit people takes about two weeks and general people takes about one month to

integrate jawbone with implant by the function of producing newly generated bone from both sides.

This is how characteristic of AQB implant that 'becomes one's own tooth' is produced.

When crown is placed, patient would be able to bite food in about one month.

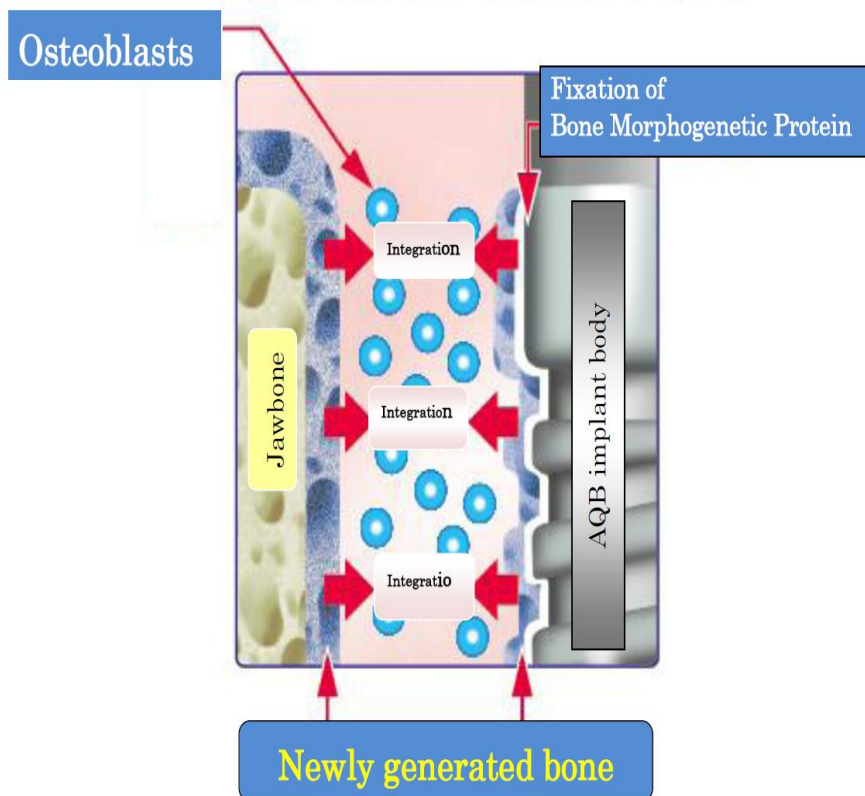
Fig. 1

AQB implant which has function of osteoinduction(bio affinity power), generates bone from both implant and jawbone sides by the process of recrystallized HA capsules + high concentration of calcium ions, phosphorus ion to osteoinduction of protein, osteoinduction of osteoblasts, and birth of newly generated bone, to integrate with jawbone to become one's own tooth.

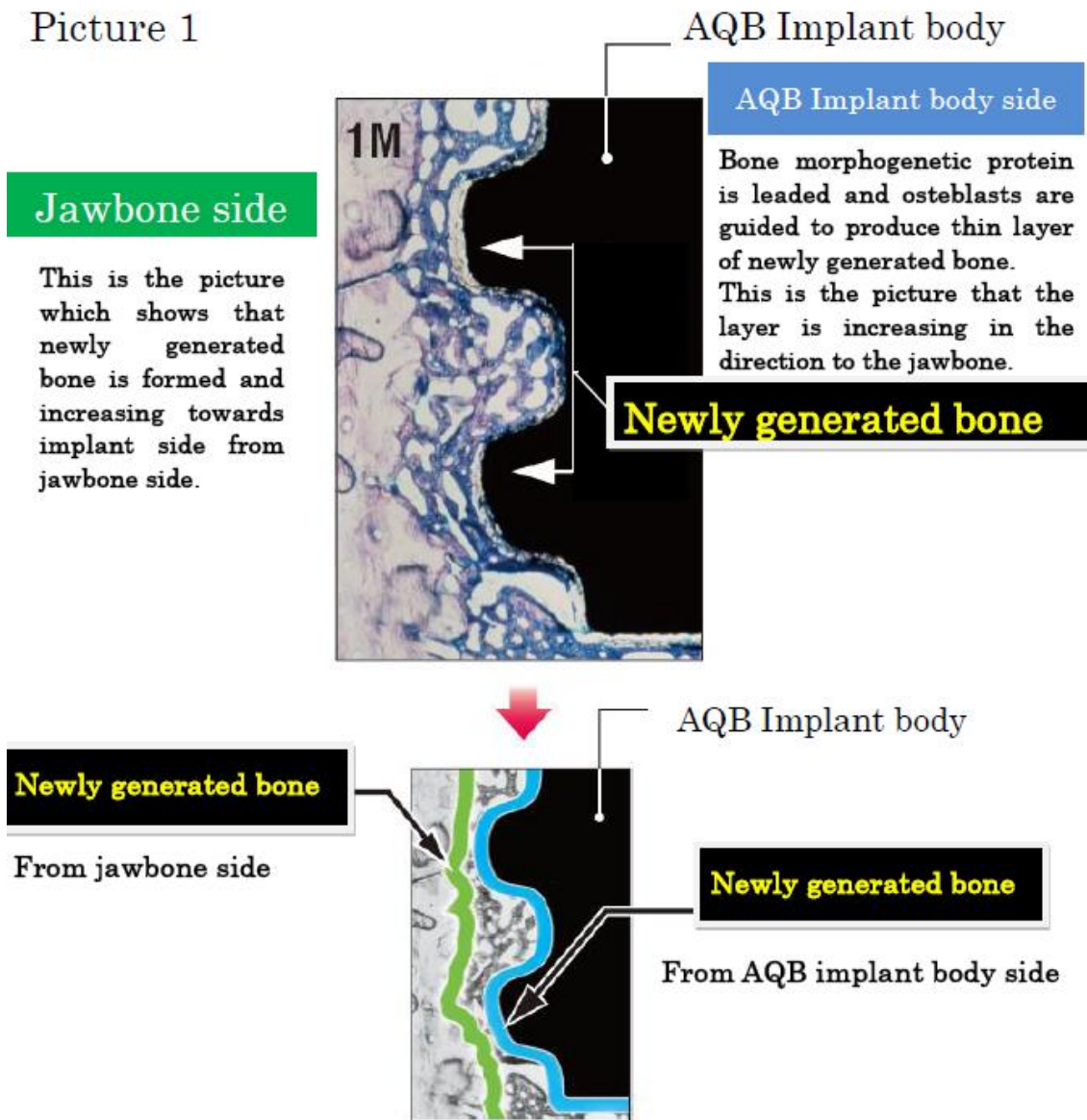
Fit people takes about two weeks and general people takes about a month.

Regenerate bone quickly

(Implant becomes one's own tooth about two weeks to one month after implant surgery)



Picture 1



Question 7

I think this is an epoch-making technique by your explanation, but do you have a patent for this?

Answer 7

Yes. We have a patent.

I will explain its patented technology concretely.

- (1) I will explain its technique to produce pure recrystallized HA layer.
- (2) Perform plasma spraying with β -TCP (Calcium phosphate) to implant at the heat of $10,000^{\circ}\text{C}$ - $20,000^{\circ}\text{C}$.

The method which is widely employed is to plasma spray to HA directly. However, this method destroys HA itself therefore it become useless in the body.

In order to avoid this, new method was found. It is to plasma spray β -TCP and changes it to α -TCP to produce a thin capsule.

When β -TCP changes to α -TCP and hydrothermal treatment is added to α -TCP, it becomes pure recrystallized HA.

This recrystallized HA establishes the bio affinity power of biological tissues.

Normal plasma spraying is basically impossible to produce recrystallized HA.

Even if implant was installed in the occasion, after few years, phosphoric acid would be separated and pH would increase, therefore implant would fall out.

Picture of AQB artificial tooth root recrystallized HA layer by scanning electron microscope



Question 8

Is there any case that a patient gets infected because of the incision on gingiva for the implantation?

Answer 8

You do not need to worry about that but that is a great question.

(1) When implant is installed in the jawbone part and they integrate to become one's own tooth, but its upper part touches gingiva.

At this time, it is true that soft tissues adhesive bio affinity power with gingiva (Power to integrate with gingiva and obtain blocking power for intraoral bacteria to not invade) would be an important theme. The reason is, if soft tissues adhesive bio affinity power did not exist between implants and gingiva, intraoral bacteria would invade there to

cause infection. Therefore, invasion of intraoral bacteria need to be prevented.

Consequently, we have patented technology for that problem as well. That is hydrothermal treatment which shows great force. By using this, normal layer of titanium oxide get two times thicker, and phosphorus ion and calcium ion are taken into this layer. Then, gingiva and titanium oxide which are soft tissues integrates as biological tissues.

That is called soft tissues adhesive bio affinity power here. This power is able to obtain blocking power which is able to remove intraoral bacteria. (Refer fig.2)

(2) I will explain the other great force of blocking power for intraoral bacteria.

That is mirror plane treatment of titanium surface.

Many implants are made from titanium that is machined to form the shape of implant, but the cutting techniques at machining and the status of grinding would make a difference in the surface condition. When the surface condition is rough (uneven in a micro level), generally, food is easier to attach to the implant which increase the bleed of periodontal pathogen.

Also, in case when abutment becomes a hotbed for bacteria to grow, plaque would attach to it. This situation increases the risk of getting periodontal disease.

Generally, titanium is a metal which is hard to machine, therefore it is difficult to make smooth and luster surface to prevent to increase bacteria.

However, AQB has overcome this difficulty and we are able to polish the innovative state of mirror polish. (Refer fig.3)

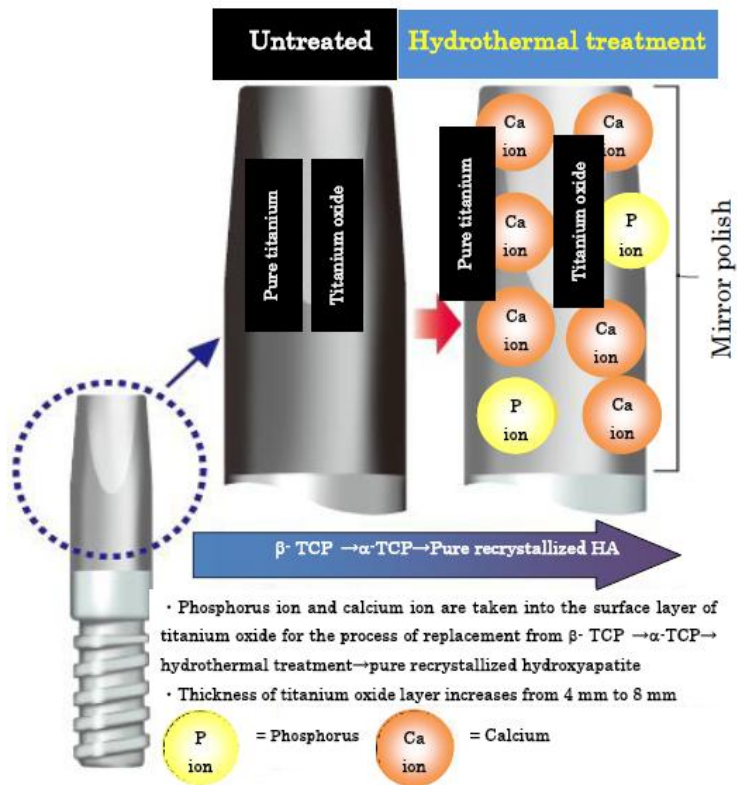
Therefore, damage of mirror plane is few and the new polishing technique is able to prevent attachment of plaque.

This mirror plane produces the blocking power between gingiva and implant.

For all these reasons, AQB implant is able to prevent invasion of intraoral bacteria, integrate with jawbone and gingiva, and has realized the long life implant which is able to keep same condition for over 20 years.

Fig. 2

Adhesion power and bio affinity power to soft tissue of gingiva is produced from mirror polish for titanium oxide and recrystallized hydrothermal treatment.



(3) Structural characteristic of AQB implants.

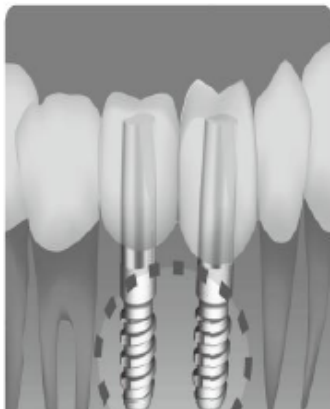
The characteristic is that the implant has spiral cylinder form.

Cylinder type has unique screw form as fig 3.

This form realizes the following effects.

Fig. 3
Spiral cylinder form

Unique spiral cylinder form which has long term stability.



The form of AQB implant is cylinder type, therefore following effects are able to obtain from its unique screw form



1. Install implant while rotates it slowly.
Push a spongy bone apart a little to enhance initial fixation after installation.
2. By comparing with simple cylinder form, spiral cylinder form has bigger area to touch bone after osseointegration, therefore resisting power gets higher against occlusal force at the main axis direction and pulling force at occlusion.
2. Screw part is trapezoid form, therefore horizontal area which receives occlusal force is bigger than simple cylinder form`s, consequently stress would not concentrates on local area often.
4. Bone fits in the ditch side, therefore strong osseointegration is able to obtain at early stage.
5. These structure, bio affinity power and osseosinduction have synergistic effect, therefore AQB implant becomes one`s own tooth in about two weeks for fit people and about one month for general people.

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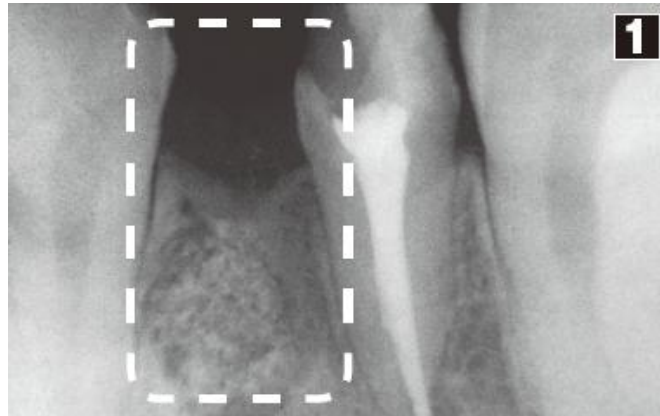
Question 9

How does bio affinity power work in the jawbone of the body?

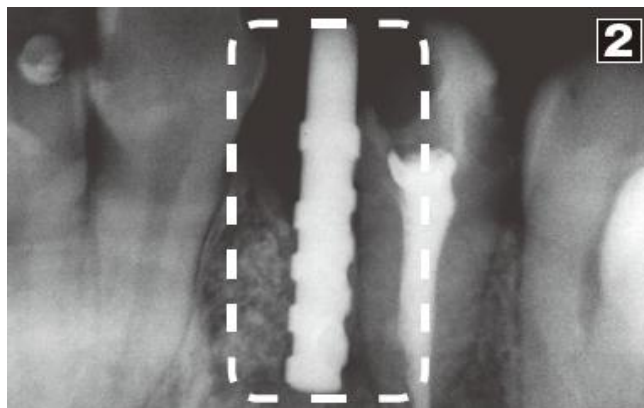
Answer 9

I will explain the process of newly generated bone augmentation at the jawbone in the body by pictures.

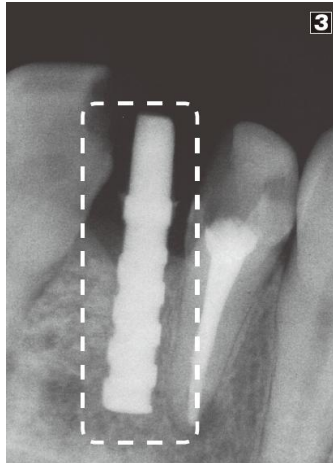
(1) The state of missing tooth. Install implant there.



(2) This is the radiograph after installing the implant. You can see that newly generated bone has not generated yet (Right after the implantation). Screw part of implant is a hollow and bone is not inducted.



(3) Two weeks after the installation, newly generated bone is generated around the implant which includes screw formed ditch. You can see that implant and newly generated bone are integrated and taken into the jawbone.



(4) A clinical example of one month implant.

Three weeks until my wedding so I want have a beautiful tooth for the wedding.

A woman who had her wedding in three weeks came to my clinic and said “I want to have beautiful mouth and front tooth to be able to smile all the time at my wedding”.

An adhesive bridge was used for the defective part at the front tooth, but it was wrong esthetically, functionally, and psychologically.

She really wanted to get ready for the wedding. Although she only had three weeks until the wedding.

Fortunately, AQB implant only takes two weeks to integrate with jawbone to become one`s own tooth.

She only had three weeks left.

Only AQB implant could deal with this problem in this world.

She was in a desperate situation, so I said to her “You are going to be fine. Let me handle this.”

I told her that she still has three weeks, because in two weeks, implant would integrates with jawbone. Fortunately, she was healthy so there was no problem.

1 Preoperative radiograph



2 Radiograph right after the surgery. The condition of initial fixation.



3 The actual image of implant after the implantation, at the time of x-radiography.



4. Actual image at the postoperative impression taking.

Impression is to take a model of tooth with silicone to produce crown. Based on the model, a beautiful crown is produced.

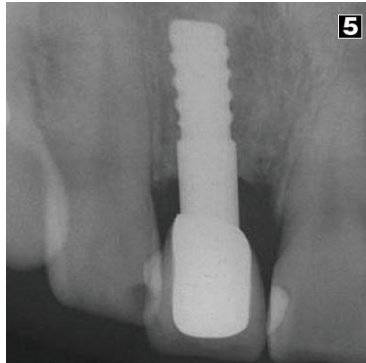
Damage of soft tissues and gingiva are recovered one week after the surgery, therefore I made sure that she obtained strong initial fixation, and I started to work on prosthesis treatment (Prosthesis is to produce crown in dentistry).



5. Newly generated bone was filled up in the ditch of spiral cylinder, and implant and the bone were already integrated.

There was no problem with opposing tooth (Tooth which is placed at the opposite side of

implant that was installed), therefore I placed a crown two weeks after the surgery.



6. Placement of a beautiful crown.

Please imagine how happy she was and her smile in her wedding gown. Her wedding was taken place happily three weeks after from the first visit.



‘One month implant’ was two weeks implant for this woman but it has brought happiness to people who wished to have implants.

For this woman, seven years has passed since the surgery but condition is very well.

(5) Mechanism of a AQB implant to become one`s own tooth is listed as follows.

Fig. 4

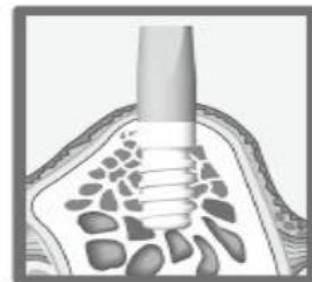


Bio affinity power with bone

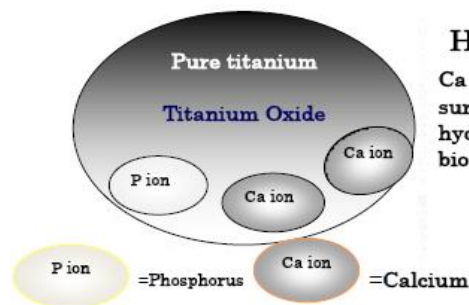


Surface polish

(Mirror polish)



Spiral cylinder form



Hydrothermal treatment

Ca ion and P ion is coated on the surface of titanium by the hydrothermal treatment, to produce bio affinity power with gingiva.

AQB coating is wonderful. Its physical property points

1. Thickness of coating layer is only 35 μm and it is difficult to come off.
2. A layer is consists mostly of recrystallized HA and it rarely have heat degradation products.
3. Crystalline of recrystallized HA is high.
4. Needle shaped and hexangular cylinder shaped microcrystal recrystallized HA is formed at surface.
5. Mole ratio of Ca/P on coating layer is about 1.66 and it is close to stoichiometric ratio of pure HA.
6. pH in the physiological saline solution hardly changes by the AQB coating.
7. Solubility hardly exists in vitro or in vivo.
8. Above mentioned characteristics produces stability, osseinduction, and bio affinity power. Also, implant would not fall out.

Question 10

I heard that safety of AQB implant is very high, but could you tell me the reason for it?

Answer 10

That is a great question because safety is really important.

Therefore I will explain the reasons by divided into the following.

(1) Safety of implants

1 Imported implants are designed for foreigners basically.

Compare with foreigners, Japanese has less bone mass and bone tissues.

Therefore, outer diameter and length of imported implants are designed to fit foreigners` bone mass and bone tissues. For that reason, imported implants do not fit Japanese.

The length of implant is long, therefore it may go through jawbone.

The implants do not integrate with jawbone as AQB implants do, therefore strong holding power would not be produced.

2 How about other Japanese implants besides AQB implants?

Most of the normal implants are titanium implants.

In this case, force to keep the titanium implant in the jawbone, in short, surgery that requires special techniques (sinus lift and GBR, etc.) is required to secure mechanical interdigitation force (friction force).

However, these surgeries would be a big risk for patients.

For example, implants have danger to invade in the maxillary sinus in regard to maxillary, and trigger to damage inferior alveolar nerve (numbness and sensory paralysis, etc.) in regard to mandible

3 AQB implant does not require special surgery that involves danger to maxilla or mandible because it uses a short implant (6 mm length in the bone).

(2) So, why AQB implants are safe when they do not have clinical problem even their length are short? That is because of the surface properties of the implants.

1 Surface properties of AQB implants are completely equal to ingredients and crystallization of Recrystallized HA which composes human`s bone. Therefore the implants integrate with bone rapidly and positively but do not bring danger to human.

2 Normal implants (titanium implants) have small clearance on contact surface (interface) with bone.

Consequently, the implants are weak against external stress. Titanium implants need to rely on mechanical retention (friciton), for that reason, the implants have to secure big surface area. Here is the reason why the implants have to be `long as much as

possible'. However, surgery which has risk is necessary in order to use those implants.

3 On the other hand, surface of AQB implants are coated with recrystallized HA, therefore a gap does not exist on the interface and it integrates with bone directly.

AQB implants have very strong durability for chewing force and other occlusal force by integrating with jawbone directly. This is the reason why AQB implants have great clinical result even their lengths are short.

4 On the other hand, AQB implants do not need to rely on mechanical retention because they integrate with bone directly. In fact, size of fossa at surgery has acceptable range, strictly speaking. Latent ability of implants to create bone urges to integrate with bone.

5 AQB implants work great even they are applied for dangerous sites.

It is safe.

6 I will explain the characteristics of AQB implant again.

A. Avoid and reduce the risk of complications for a case which uses sinus lift, and incidental disease such as damage on inferior alveolar canal (stress or rupture).

B. Contributes to propel and establish minimally invasive treatment

C. Reduce physical and mental stress of patients and shorten the treatment period.

D. Bone strength increases by the HA synostosis.