



RAQAMLI TISH QOLIPLARI

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ABSTRACT

Texnologiyalar rivojlanishi bilan stomatologiya texnologiyalari ham rivojlanmoqda. Stomatologiyada "raqamli tish qoliplari" ni tayyorlash va shakllantirish uchun yangi imkoniyatlar joriy etilmoqda, bu protezlash uchun zarur bo'lgan vaqtni sezilarli darajada qisqartiradi va protezlash sifatini oshadi. Bunday raqamli texnologiyalar intraoral skanerlar yoki 3D skanerlar deb ham ataladi.

Tishlarni 3D skanerlash - bu progressiv va juda aniq diagnostika usuli bo'lib, tish shifokoriga bemorning jag'lari va tishlarini turli burchaklardan ko'rish imkonini beradi. Bunda, tishlarni skanerlash maxsus qurilma yordamida amalga oshiriladi - og'iz ichi (intraoral) 3D skaneri.

Ushbu diagnostika moslamasi tish shifokorlariga bir necha daqiqada bemorga hech qanday noqulaylik tug'dirmasdan jag'ning "taassurotini" raqamli formatda olishga imkon beradi.

Tishlarni skanerlash jarayoni mutlaqo og'riqsiz, tez va oson kechadi: 3D skanerlash tish protezlari va tishlovni qayd etish kabi stomatologik muolajalarni rejalashtirish, davolash natijalarini oldindan ko'rish imkonini beradi.

Skanerning ishlash printsiplari olingan tasvirlarni raqamli 3D modeliga sintez qilishdir. Skanerlash, tishlardan qolip olish jarayonini to'liq o'rnini bosa oladi.

Skanerdan so'ng, intraoral skaner jag'ning uch o'lchovli tasviri asosida tishlarning muammoli joylarini aniqlash va bartaraf etish (shu sohani qayta skanerlash), protezlarning kerakli modellarini yaratish mumkin. Hatto kuchli qusish refleksi bo'lgan bemorlar ham ko'ngil aynishni boshdan kechirmaydilar, taassurotlarni olish uchun intraoral skanerdan bemalol foydalanish mumkin.



Ushbu skanerlar yordamida yaratilgan raqamli modellar ancha aniqroq hisoblanadi. Bu ortopedik jarrohlikda, protezlar va implantlar, brekкетlar kabi ortopedik davololashni tashkillarshtirish uchun juda muhimdir.

Raqamli skanerlashda shifokor bemorning tishlarining raqamli 3D modelini oladi. Keyin fayl stomatologiya

laboratoriyasiga yuboriladi, u yerda mutaxassis maxsus dastur yordamida protezning 3D modelini yaratadi.

Tayyor model frezalash mashinasiga joylashtiriladi va tanlangan materialdan qoplama tayyorlanadi.

Olingan 3D modelning aniqligi ortopedik komponentning mukammal moslashishi, tishlashi qulayligi va chidamliligini ta'minlaydi.

Material va metodlar.

Ko'pchilik zamonaviy klinikalarda jag'lardan individual qolip olish jarayoni to'liq 3D skanerlash bilan almashtirilgan. Ushbu skanerlar stomatologiyaning turli sohalarida qo'llaniladi:

1. Ortopedik stomatologiya-an'anaviy jag'ning qoliplari o'rniga skanerlardan foydalanish. Bu millimetrning 1/100 qismigacha bo'lgan qoplamalar, ko'priksimon qoplamalar va vinirlarni yasashning eng zamonaviy usulidir.

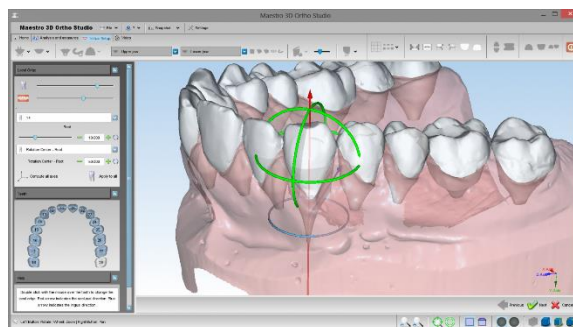
2. Implantologiya-implantlarni joylashtirishdan oldin tashxis qo'yish va jarrohlik modellarini tayyorlash uchun ishlatiladi.

3. Ortodontiya-klinik tekshirish va tashxislash, davolash natijalarini oldindan ko'rish va kerak bo'lganda ortodontik tuzilmalarni yaratish uchun ishlatiladi.

4. Gnatologiya - skanerlash patologiyani aniqlash, shinalar va splintlarni tayyorlashda yordam berish uchun ishlatilishi mumkin.

Skanerlash jarayoni qanday amalga oshiriladi

Jag'ning 3D modelini olish tartibi juda oddiy va mutlaqo og'riqsizdir. Shifokor skaner va kompyuterni sozlaydi. Bemordan og'zini ochish so'raladi va tishlari navbatma-navbat skanerdan o'tkaziladi. Jarayon avval yuqori, so'ngra pastki jag'da amalga oshiriladi. Keyin tishlov skaneri o'tkaziladi, bunda bemordan tishlashish so'raladi. Butun protsedura bir necha daqiqa davom etadi.



Og'iz bo'shlig'ida ishlagandan so'ng, tish shifokori skanerlangan va hisoblangan tasvirlarni baholaydi. Agar kerak bo'lsa, muammoli joylarning qo'shimcha rasmlari olinishi mumkin. Keyin kompyuter ekranida jag'ning 3D modeli baholanadi. Shifokor bir nechta davolash usullarini taklif qiladi va bemorning ehtiyojlariga eng mos keladiganini tanlaydi. Keyin bemorga tavsiyalar va ko'rsatmalar beriladi.

Natijalar

3D skanerda tishlardan qolip olishning afzalliklari

- ✚ Yuqori aniqlik: silikon materialdan foydalangan holda juda aniq qoliplarni olishda ham, modelni quyishda materialning biroz qisqarishi kuzatiladi, bunda maksimal xatolik 100 mikronni tashkil qiladi. 3D skanerdan foydalanilganda, xato atigi 12 mikronni tashkil qiladi, bu esa an'anaviy usullarga qaraganda besh-olti baravar aniqroq.
- ✚ Foydalanish qulayligi. Tish shifokori oddiy harakatlar yordamida yuqori sifatli jag' modelini oladi.
- ✚ Jarayon juda oz vaqt talab etadi. Qurilma taassurotni 24 soniyada skanerlaydi. An'anaviy usullarda bo'lgani kabi kutishning hojati yo'q.
- ✚ Bemorga qulayligi. Skanerlash og'riqsiz va noqulaylik yoki qusish reflekslarini keltirib chiqarmaydi.
- ✚ Informativ. Jag'ning uch o'lchovli modeli yuz-jag' tizimining barcha xususiyatlarini aniqlashga va har bir holatga tegishli davolash usulini tanlashga imkon beradi.

Jag'larning raqamli taassurotlari tishlar va jag'larning holati to'g'risida aniq va ishonchli tasavvur beradi. Afzalliklari shundaki, ularni batafsil o'rganish, turli tuzilmalarni sinab ko'rish, davolanishning yakuniy natijasini modellashtirish va qoliplarni tayyorlash mumkin. Ushbu qoliplarni tezda boshqa laboratoriyalarga yoki klinikalarga yuborish mumkin va ularni fayl kabi saqlash ham qulay.

3D tishlarni skanerlash uchun ko'rsatmalar va qarshi ko'rsatmalar.

Og'iz bo'shlig'ini 3D skanerlash uchun ko'rsatmalar:

- ✓ Tishlov anomaliyalari
- ✓ Tishlarning g'ayritabiiy holati, shakli yoki kattaligi
- ✓ Egri tishlar, deformatsiyalangan tishlar
- ✓ Bir, bir nechta yoki barcha tishlarning yuqotilishi
- ✓ Qattiq tish to'qimalarining nuqsonlari
- ✓ ChPJB kasalliklari
- ✓ Kapalar, shinalar, reteynerlar tayyorlash va oqartirish zarurati
- ✓ Implantlarni tayyorlash va jarrohlik
- ✓ Elaynerlarni loyihalash

Raqamli skanerlashga qarshi ko'rsatmalar mavjud emas. Jarayon turli yoshdagi odamlar, bolalardan qariyalargacha amalga oshirilishi mumkin. Allergik reaksiyalar ham chiqarib tashlanadi, chunki bu jarayonda qayta ishlangan materiallar ishlatilmaydi.

Xulosa

Intraoral skanerlar shifokorning ishini va bemorni davolashni ancha osonlashtiradigan jamonaviy vositalardir. Ular yordamida asoratlar xavfisiz, tezroq, sifatli va samarali davolanishni amalga oshirish mumkin. Skaner yordamida tayyorlangan ortopedik va ortodontik konstruksiyalardan foydalanish qulayroq va sifatlidir.

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